

**SECOND FIVE-YEAR REVIEW REPORT FOR
LYMAN DYEING AND FINISHING SUPERFUND SITE
SPARTANBURG COUNTY, SOUTH CAROLINA**



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Prepared for

**U.S. Environmental Protection Agency
Region 4
Atlanta, Georgia**


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Date



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LIST OF ABBREVIATIONS & ACRONYMS

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
ALC	Aquatic Life Criteria
BGS	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COCs	Contaminants of Concern
COPCs	Contaminants of Potential Concern
EE/CA	Engineering Evaluation/Cost Analysis
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
FFS	Focused Feasibility Study
FYR	Five-Year Review
HHRA	Human Health Risk Assessment
IC	Institutional Control
LLDPE	Linear Low-Density Polyethylene
MCL	Maximum Contaminant Level
µg/L	Micrograms Per Liter
mg/kg	Milligrams Per Kilogram
NCP	National Contingency Plan
NPL	National Priorities List
NRWQC	National Recommended Water Quality Criteria
NTCRA	Non-Time Critical Removal Action (Removal Action)
O&M	Operation and Maintenance
OU	Operable Unit
PAHs	Polyaromatic Hydrocarbons
PCB	Polychlorinated biphenyls
PCM	Post-Construction Monitoring
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RGO	Remedial Goal Options
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
SA	Superfund Alternative
SCDHEC	South Carolina Department of Health and Environmental Control
SJWD	Startex-Jackson-Wellford-Duncan
Springs	Springs Industries, Inc.
SVOC	Semi-volatile Organic Compound
TAL	Target Analyst List
TCL	Target Compound List
UU/UE	Unlimited Use/Unrestricted Exposure
VOC	Volatile Organic Compound
UCMR 3	Unregulated Contaminant Monitoring Rule 3

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the second FYR for the Lyman Dyeing and Finishing Superfund Site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE). The Site consists of one operable unit (OU). The sitewide OU addresses the soil remedy.

EPA remedial project manager (RPM) Yvonne Jones led the FYR. Participants included EPA human health risk assessor Kevin Koporec, EPA ecological risk assessor Sharon Thoms, EPA community involvement coordinator (CIC) Kerisa Coleman, EPA counsel Susan Capel, South Carolina Department of Health and Environment (SCDHEC) project manager Sara MacDonald and the SCDHEC environmental health manager Evan Ethridge. The review began on 11/26/2018. Appendix A provides a list of documents reviewed as part of this FYR. Appendix B provides a summary of the current site status. Appendix C provides a detailed chronology of site events.

Site Background

The 14-acre site is located on a peninsula in the southern portion of Lyman, Spartanburg County, South Carolina (Figure 1). The Site includes a 3.9-acre landfill area and a 4.5-acre wetland area. An industrial facility, Springfield, LLC (previously known as the Lyman Dyeing and Finishing Facility) borders the Site to the north, followed by Wamsutta Drive, CSX railroad tracks and residential properties beyond. The Middle Tyger River borders the Site to the south, east and west. The Startex-Jackson-Wellford-Duncan Water District (SJWD) operates a municipal water treatment plant to the east of the Site. The intake for this facility is approximately 700 feet downstream of the Site on the Middle Tyger River. Residential properties are located north and west of the Site. An undeveloped area and James F. Byrnes High School are located south of the Site. There are no public water supply wells within four miles of the Site. Locally, water is supplied by SJWD.

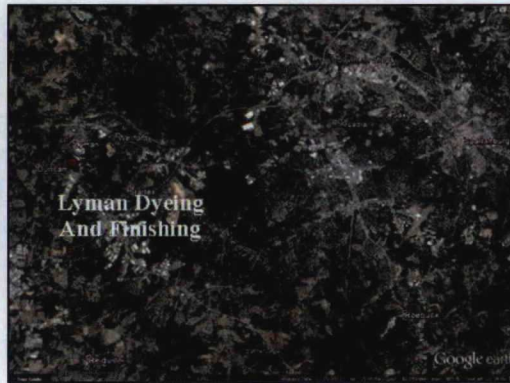
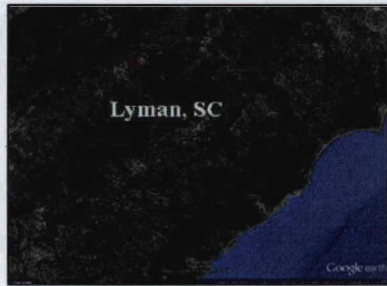
In 1924, Pacific Mills opened a textile mill in Lyman, SC, approximately 1,500 feet north of the Site. From approximately 1924 to 1965, the facility (Lyman Dyeing and Finishing) operated a landfill at the Site. The peninsular-shaped area is adjacent to the Middle Tyger River and was used to dispose of various solid wastes from the mill. Potential chemicals associated with the wastes from the mill include residue of dyes, hydraulic liquids, waste solvents, adhesive materials, and office supplies. Waste disposal ended at the Site in the late 1960's. Springs Industries, Inc (Springs) acquired the Lyman Dyeing and Finishing facility from M. Lowenstein in 1986, including the 14-acre Site located south of the Lyman Dyeing and Finishing facility.

Potential chemicals associated with the solid wastes from the facility include residues of dyes, hydraulic liquids, waste solvents, adhesive materials, and office supplies. Municipal solid waste generated by residents of the Town of Lyman was also placed within the site boundary. Potential chemicals associated with solid waste from the Town of Lyman included waste oils, hydraulic fluids, household chemicals, and solvents. No waste disposal has occurred at the Site since the late 1960s. Springs Industries, Inc. (Springs) acquired the Lyman Dyeing and Finishing Facility from M. Lowenstein in 1986. The Site is part of a larger industrial complex and the future land use for this complex is expected to remain industrial in nature. The land use for the Site is expected to remain undeveloped.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Lyman Dyeing and Finishing Site		
EPA ID: SCD987584653		
Region: 4	State: SC	City/County: Lyman/Spartanburg
SITE STATUS		
NPL Status: Non-NPL		
Multiple OUs? No	Has the site achieved construction completion? No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Yvonne Jones, EPA		
Author affiliation: EPA with support from South Carolina Department of Health and Environmental Control		
Review period: 11/26/2018 - 7/1/2019		
Date of site inspection: 12/4/2018		
Type of review: Statutory		
Review number: 2		
Triggering action date: 9/29/2014		
Due date (five years after triggering action date): 9/29/2019		

Figure 1 - Site Location Map



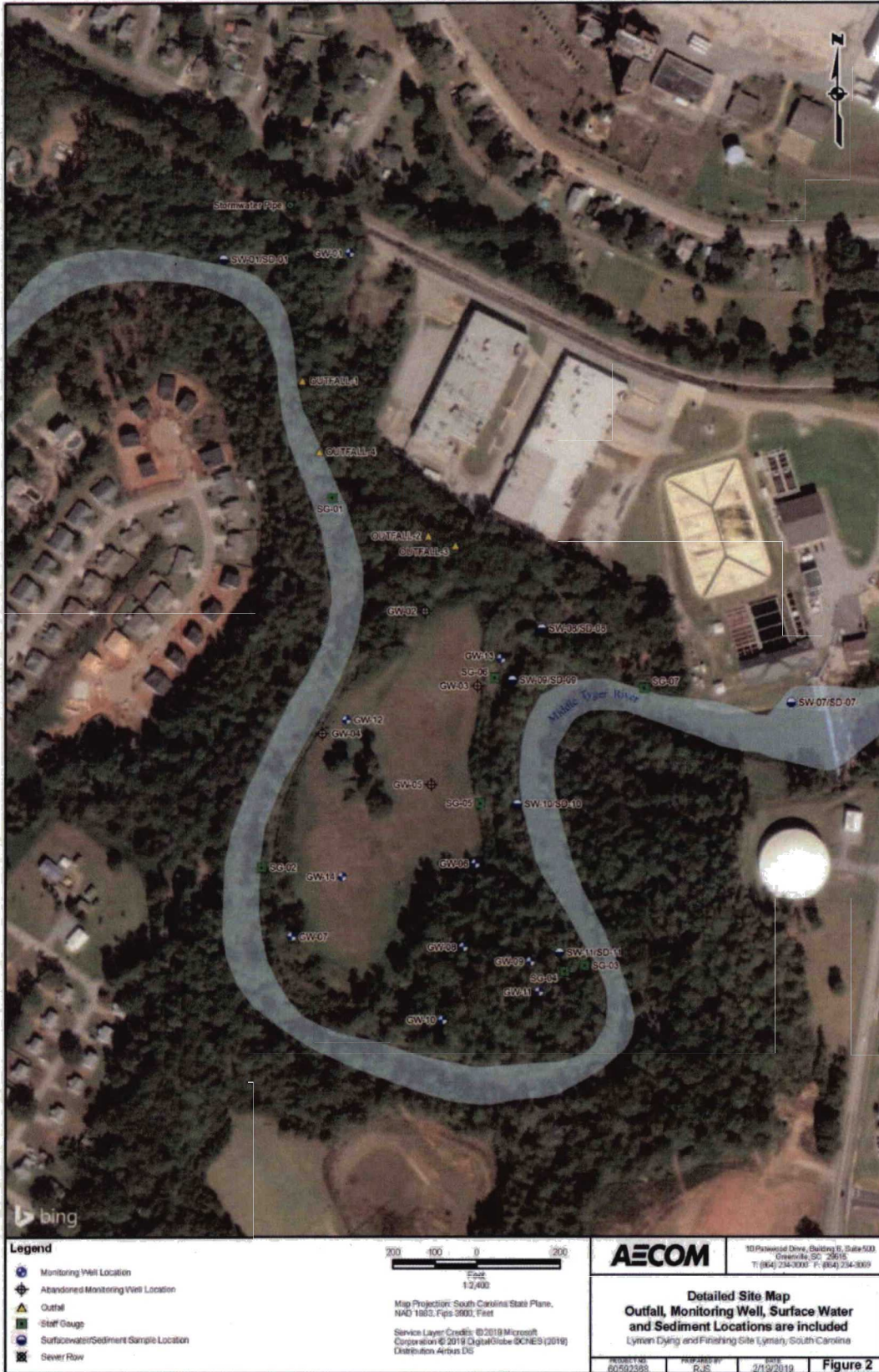
- The Site lies within the property boundary outlined in red



Lyman Dyeing and Finishing Site
Lyman, Spartanburg County, South Carolina

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 2 - Detailed Site Map



II. RESPONSE ACTION SUMMARY

Basis for Taking Action

From 1993 to 1998, the EPA and SCDHEC conducted several studies at the Site to gather preliminary assessment information. Elevated concentrations of arsenic, lead, iron, polynuclear aromatic hydrocarbons (PAHs), and pesticides were detected above background levels in surface and subsurface soils at the Site. Monitoring well sampling indicated constituent concentrations did not exceed background level concentrations. Initial investigations identified concentrations of lead and zinc in surface water samples collected near the SJWD water treatment plant intake and were attributed to the Site. Trace amounts of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were also reported in several surface water samples. Concentrations of metals, PAHs, and pesticides exceeding background concentrations were reported in sediment samples collected near the SJWD water treatment plant intake, the Site, and upstream of the Site. Concentrations of metals were highest in sediment samples collected from a tributary located upstream of the Site and in sediment samples collected downstream of the Site. Due to the low concentrations, it was determined that the Site did not affect the SJWD water treatment plant intake.

In 1994, approximately 50 tons of waste materials were removed from the Site by Springs and disposed of at the Palmetto Landfill located in Wellford, South Carolina. The waste removed from the Site during this effort consisted of the following items; empty, crushed, and rusted drums, rusted metal debris, soil, plastic, wood, paper, powdered dye, and rubber. In 1997, additional waste material was removed from the eastern side of the Site, adjacent to the Middle Tyger River, and disposed of at the Palmetto Landfill in Wellford, South Carolina.

In 1998, the Site qualified for placement on the National Priorities List (NPL). However, the EPA did not list the Site on the NPL, but is addressing it through the Superfund Alternative Approach. Appendix C provides a site chronology that lists the significant regulatory and milestones completed at the Site.

To further characterize the Site, Springs, the potentially responsible party (PRP), voluntarily entered into an Administrative Order on Consent (AOC) with the EPA to perform a Remedial Investigation/Focused Feasibility Study (RI/FFS) in 1999. The RI was conducted intermittently from May 2001 through January 2003. RI activities included the collection of groundwater, soil, sediment, and surface water samples that were analyzed for VOCs, SVOCs, pesticides, herbicides, polychlorinated biphenyls (PCBs), and metals. Areas identified as requiring remedial/removal action consisted of the "Source Area" in the northern portion of the Site and two "Hot Spot" areas located in the southern portion of the Site. There was no significant impact to groundwater, surface water, or sediments identified at the Site or downstream from the Site. Although several constituents were detected in the groundwater, surface water, and sediments, the concentrations did not warrant remediation.

From October 2002 to January 2003, Springs conducted an Early Action at the Site. The objective of the Early Action was to resolve whether the surface debris disposed at the Site from the 1920's to the 1960's had the potential to create additional impacts to the Site. This was completed by evaluating the types of surface debris located in the southern portion of the Site, characterizing the surface debris that was removed, collecting confirmatory soil samples in the areas of the removal, evaluating options for the removed debris, and disposing the surface debris that was removed.

Approximately 16,200 tons of screened soil and 6,141 tons of miscellaneous debris (i.e., glass, brick, concrete, wood, plastic, rusted drums, cloth and other miscellaneous general household debris) were removed from the horseshoe shaped surface debris berm. With the EPA and SCDHEC concurrence, Springs disposed of the miscellaneous debris at the Palmetto Landfill in Wellford, South Carolina. The screened soils (approximately 16,200 tons) remained stockpiled on the Site. Based on the results of the Early Action, soils beneath the surface debris berm were impacted by the surface debris materials that were located above it.

In January 2003, a Human Health Risk Assessment (HHRA) was conducted to evaluate chemicals found on the Site according to their potential to produce either cancer and/or non-cancer health effects. The HHRA considered the risks of site contaminants under its current land use (industrial) and from the perspective of a potential visitor/trespasser. The HHRA examined the surface water, sediment, and surface soil exposure pathways. At the time of the HHRA, significant risks were indicated for the current site visitor/trespasser from exposures to site surface soil. Cancer risk for this exposure scenario was found to be 1×10^{-4} , triggering EPA's benchmark to consider a remedial action. The HHRA identified PAHs and metals as the contaminants of concern (COCs). In 2003, an Ecological Risk Assessment (ERA) was also conducted at the Site. The ERA determined the surface soil pathway represented a potential risk to ecological receptors via direct toxicity and food chain bioaccumulation. The ERA identified PAHs as the contaminants of potential concern (COPCs).

Upon completion of the RI/FFS, the EPA determined that the Site was eligible for a Non-Time Critical Removal Action (NTCRA). Non-time-critical removal actions are supported by an Engineering Evaluation/Cost Analysis (EE/CA) or its equivalent. A similar analysis was completed during the RI/FFS. Consequently, the RI/FFS included all of the elements of an EE/CA. As such, the EPA made a site-specific decision to allow the RI/FFS to serve as the EE/CA. Clean-up goals were developed using the Industrial Land Use Scenario for Human Health and Ecological risks. Table 1 lists site COCs by medium based on the risk assessments.

Table 1: Contaminants of Concern (COCs) by Medium^a

COC	Surface Soil
Arsenic	X
Benzo[a]anthracene	X
Benzo[a]pyrene	X
Benzo[b]fluoranthene	X
Benzo[k]fluoranthene	X
Dibenzo[a,h]anthracene	X
Chrysene	X
Ideno[1,2,3-c-d]pyrene	X
Iron	X
Notes:	
^a Sources: Table 2, September 2003 Action Memorandum and Table 2, 2009 Record of Decision	

Response Actions

In July 2003, the EPA published a Proposed Plan soliciting public comment on its preferred alternative for the NTCRA. Based on the results of the RI, HHRA, ERA and the Early Action, the following Remedial Action Objectives (RAOs) were presented to the public:

- Prevent exposure of human and ecological receptors to contaminated Site soils.
- Prevent migration of contaminants from Site soils to groundwater.
- Prevent migration of contaminants from Site soils to surface water and protect the SJWD water treatment plant intake.
- Monitor the effectiveness of the remedy.

After considering and addressing all comments received on the proposed remedy, on September 30, 2003, the EPA issued an Action Memorandum that selected the following remedial components:

- Excavation of the surficial soils in areas of the southern portion of the Site where COC concentration levels result in a risk greater than 1×10^{-6} using the Industrial Scenario for Human Health & Ecological Risk Assessment.
- Excavation of the Source Area (1 foot below ground surface [bgs])) located in the northern portion of the Site.
- Design and installation of an engineered cap at the "Source Area" consisting of 18" of clay with 10^{-6} cm/sec permeability plus 12" of cover with clean fill material.
- Long-term monitoring (minimum 5 years) for groundwater, surface water in the wetlands, sediment in the wetlands, surface water at the SJWD intake, and the sediments at the SJWD intake.
- Implement institutional controls.

Clean-up goals were developed using the Industrial Land Use Scenario for Human Health and Ecological risks in the 2003 HHRA. Table 2 presents a summary of a list of soil COCs and the cleanup levels established in the 2003 Action Memorandum and subsequently, the 2009 No Further Action Record of Decision (2009 ROD).

Table 2: Cleanup Goals Established in the 2003 Action Memorandum and the 2009 ROD^a

COC	Cleanup Goal (mg/kg)
Arsenic	3.4
Benzo[a]anthracene	2.8
Benzo[a]pyrene	0.032
Benzo[b]fluoranthene	2.8
Benzo[k]fluoranthene	27
Chrysene	277
Dibenzo[a,h]anthracene	0.032
Ideno[1,2,3-c-d]pyrene	2.8
Iron	60,800
Notes:	
<i>mg/kg = micrograms per kilogram</i>	
<i>^aSources: Table 2, September 2003 Action Memorandum and subsequently Table 2, 2009 Record of Decision Cleanup Goals based on actual risk calculations and/or quantitation limits.</i>	

Status of Implementation

On June 2, 2004, Springs voluntarily entered into an AOC with the EPA to perform the NTCRA at the Site. Based on review and approval of the Final Design Criteria Report, the Final Technical Specifications, the Final Removal Action Work Plan and the results of the pre-construction meetings held on June 10 and June 24, 2005, the EPA issued a "Notice to Proceed with the Removal Action" on June 14, 2005. The NTCRA was performed by Envirocon and URS, on behalf of Springs, from June 2005 through October 2005. A summary of the NTCRA is provided below.

Source Area Excavation

Soils located within the Source Area were excavated to a depth of 1 foot bgs. Those portions of the Source Area that extended into the Easement area were excavated to a depth of 3 feet bgs in the northeastern portion and 6 feet bgs in the northwestern portion. Approximately 5,010 tons of surface soils were excavated from the Source Area and properly disposed of at the Republic Landfill located in Enoree, South Carolina. Approximately 12,150 tons of previously screened soil (from the Early Action) was placed in the Source Area to serve as backfill for low areas. An engineered cap was constructed over the Source Area which consists of the following elements, from bottom to top:

- waste material (less the 1 foot excavated and disposed of);
- initial grading in the Source Area;
- shape fill in the Source Area;
- operational fill/cushion layer;
- 40-mil Linear Low-Density Polyethylene (LLDPE);
- 18 inches of protective soil cover;
- 12 inches of vegetative soil layer; and
- permanent grassing.

Hot Spot Areas Excavation

Excavation of the Hot Spot Areas was conducted concurrent with the Source Area excavation. Soils were excavated to 1 foot bgs. Approximately 2,580 tons of surface soils were excavated from the Hot Spot Areas and properly disposed at the Republic Landfill located in Enoree, South Carolina. Approximately 4,656 tons of EPA-approved backfill material was then placed over the Hot Spot Areas. Grassing of the Hot Spot Areas followed shortly thereafter.

Erosion and Sediment Control

Post-construction erosion and sediment control measures were implemented for slope stabilization and to minimize water intrusion into the Source Area. These measures include the installation of erosion matting, rip-rap armor, and a rip-rap drainage ditch.

Permanent Fencing and Gates and Installation of Signs

Approximately 2,800 linear feet of six-foot high galvanized chain-linked fence topped with barbed wire and interspersed with warning signs was installed around the perimeter of the Site to enclose the Source Area and Hot Spot Areas.

Confirmation Sampling Event/Pre-Final and Final Construction Inspection

Following completion of the construction activities associated with the Source Area and Hot Spot Areas, the EPA conducted a confirmation field sampling investigation at the Site on September 26 and 27, 2005. A total of nine confirmation soil samples were collected from the Source and Hot Spot Areas. Soil

samples were collected from the surface to approximately 1 foot bgs and were analyzed by the EPA Laboratory for VOCs, PAHs, and target compound list (TCL) and target analyst list (TAL) metals. The laboratory analytical results did not indicate the presence of VOCs or metals at concentrations above the Site Health Risk Based values (Target Levels summarized in Table 2) documented in the Action Memorandum. PAHs were detected in three of the nine samples submitted for analysis by EPA. Based on discussions and the Pre-Final/Final Construction Inspection held on October 11, 2005, it was determined the following items needed to be addressed:

- Placement of additional clean backfill material in the Hot Spot Areas identified by the EPA from the September 2005 confirmatory sampling event;
- Grading improvements to allow for better surface water drainage near monitoring well GW-06;
- Construction of an additional surface water collection trench to the north of the Soil Cover to prevent erosion and undermining of the anchor trench; and
- Completion of the permanent chain link fence surrounding the Site work area.

The items which needed to be addressed as determined from the confirmation sampling event and the Pre-Final/Final Construction Inspection were completed between October 11 and October 15, 2005. Upon review of the 2006 Final Removal Action Completion Report, the EPA determined that the results of the NTCRA met the requirements in the Action Memorandum and the AOC for the NTCRA. Additional details on the activities completed as part of the Removal Action are documented in the *2006 Final Removal Action Completion Report*.

Post-Construction Monitoring Program

Upon completion of the Removal Action, URS, on behalf of Springs, implemented the Post-Construction Monitoring Program for the Site. This Program consists of monitoring of groundwater, surface water, and sediments at perimeter and sentinel locations for a minimum of 5 years. The objective of this Program is to monitor the long-term progress of the Removal Action toward the prevention of COC migration from the Site soils to groundwater, surface water, and sediments. Monitoring is ongoing, but at a reduced frequency.

Long-term Operation and Maintenance

Monthly inspections at the Site have been conducted since the completion of the Removal Action. Inspections include evaluating for erosion damage, monitoring for signs of settlement, inspecting the exterior fence for damage or vandalism, mowing of grass, and removing roots around the soil cover. Site inspections are ongoing, but at a reduced frequency.

Implementation of Institutional Controls (ICs)

ICs were implemented in June 2008. A detailed discussion of ICs is included in the Institutional Controls (ICs) Review Section.

Following 5 years of monitoring, in 2009, the EPA issued a No Further Action ROD for the Site. The 2009 ROD included the EPA's decision to not require further cleanup activities at the Site following the completion of the NTCRA, but to continue site maintenance and monitoring of the cap and maintain ICs on the property.

Institutional Controls (ICs) Review

ICs are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use. The ICs implemented

at the Site is a restrictive covenant that prohibits, among other things, residential use, groundwater use, exposure to contaminated site soils, and interference with the engineered soil cover. The IC instruments implemented for the Site are as follows:

1. Declaration of Covenants and Restrictions between Springs Industries, Inc., and the SCDHEC recorded June 2, 2008, in Deed Book 91-M page 537 (Instrument # DEE-2008-26489) in the Office of the register of Deeds for Spartanburg County, South Carolina.
2. Subordination Agreement from the Town of Lyman recorded June 2, 2008, in Deed Book 91-M page 546 (Instrument # DEE-2008-26490) in the Office of the register of Deeds for Spartanburg County, South Carolina.
3. The original plat, which was recorded in connection with the Declaration of Covenants and Restrictions between Springs Industries, Inc., and the SCDHEC, was recorded on June 2, 2008, in Plat Book 163 page 184 (Instrument # PLT-2008-26488).
4. The Material Management and Health and Safety Plan

Table 3 summarizes the institutional controls required by the 2003 Action Memorandum and continued under the 2009 ROD. Figure 3 shows the property parcel impacted by the institutional controls. The IC instruments are included in Appendix D.

Table 3: Summary of Implemented Institutional Controls

Area of Interest – Lyman Dyeing and Finishing Site					
Media/ Area	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel	IC Objective	Title of IC Instrument and Date Implemented
Groundwater	Yes	Yes	5-15-00- 006.01	Restrict access to contaminated groundwater	Declaration of Covenants and Restrictions; February 18, 2008
Soil	Yes	Yes	5-15-00- 006.01	Restrict exposure to contaminated site soils	Declaration of Covenants and Restrictions; February 18, 2008 Subordination Agreement; May 22, 2008 Material Management and Health and Safety Plan May 22, 2008
Landfill Cap	Yes	Yes	5-15-00- 006.01	Protect the engineered cap	Declaration of Covenants and Restrictions; February 18, 2008 Subordination Agreement; May 22, 2008 Material Management and Health and Safety Plan May 22, 2008

Figure 3 - Institutional Control Base Map



Sources: Google Earth and Spartanburg County Tax Offices

Legend/Information

The area outlined in red and shaded represents the parcel associated with the Lyman Dyeing and Finishing site. The property has deed restrictions in place.

Property ID: 5-15-00-006.01

Owner: Springs Industries, Inc.



Lyman Dyeing and Finishing Site
Lyman, Spartanburg County, South Carolina

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Operation & Maintenance (O&M)

Upon completion of the NTCRA, AECOM (formerly URS), on behalf of Springs, implemented the Post-Construction Monitoring (PCM) Program for the Site. The PCM Program consists of monitoring groundwater, surface water, and sediments at perimeter and sentinel locations for a minimum of 5 years. The objective of the PCM Program is to monitor the long-term progress of the NTCRA toward the prevention of COC migration from the Site soils to groundwater, surface water, and sediments. Regular inspections at the Site have been conducted since the completion of the NTCRA. Inspections include evaluating for erosion damage, monitoring for signs of settlement, inspecting the exterior fence for damage or vandalism, mowing the grass, and removing roots around the cap.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the previous FYR (Table 4) as well as the recommendations from the previous FYR and the status of those recommendations (Table 5).

Table 4: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Short-term Protective	<p>The remedy at the Site is protective in the short term. There are currently no completed exposure pathways. The NTCRA significantly reduced the threats to human health and the environment posed by highly contaminated soil. However, in order for the remedy to be protective in the long term, the following actions should be implemented:</p> <ul style="list-style-type: none">• Conduct an evaluation to determine the presence of iron concentrations detected above the National Recommended Water Quality Criteria (NRWQC) in the surface water of the wetland and at GW-13 (adjacent to the wetland) and determine its impact on the COCs in the sediment.• Conduct an evaluation to determine whether there are contaminant sources that could impact the remedy.

Table 5: Status of Recommendations from the 2014 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description*	Completion Date (if applicable)
Sitewide	Although most COCs have decreased over time for most locations (surface water, sediment and groundwater), iron has decreased in surface water, but is still above the National Recommended Water Quality Criteria (NRWQC) values for the protection of Aquatic life.	Conduct an evaluation to determine the presence of iron concentrations detected above the NRWQC in surface water of the wetland and at GW-13 (adjacent to the wetland) and its impact on the sediment.	Considered But Not Implemented	Groundwater and surface water data collected at this sampling event indicates that concentrations of PAHs have remained virtually non-detect at all sample locations and most metals have remained stable. However, dissolved iron concentrations in SW-8 and SW-9 have increased relative to historical data.	NA
Sitewide	Although the concentrations of PAHs in groundwater have been non-detect from 2005-2012 at all well locations, in 2013, the concentrations of PAHs in GW-12 were detected at levels significantly higher than the MCLs. The 2014 data indicated non-detect for PAHs for all COCs in GW-12.	Conduct an evaluation to determine whether there is an off-site contaminant source that could impact the remedy at the Site.	Completed	A sampling event was conducted in January 2019. The data indicated non-detect for PAHs in GW-12. Based upon historical data and the January 2019 sampling event, the remedy is functioning as designed.	4/19/2019

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement and Site Interviews

A public notice was made available by newspaper in *The Spartanburg Herald Journal* on 11/26/2018, (Appendix E) stating that there was a five-year review and inviting the public to submit any comments to the EPA. The results of the review and the report will be made available at the Site information repository located at Middle Tyger Branch Library, 170 Groce Road, Lyman, South Carolina.

The FYR process included interviews with regulatory agencies involved in Site activities or aware of the Site. The purpose was to document the perceived status of the Site and any perceived problems or successes with the phases of the remedy implemented to date. All the interviews were completed by email after the Site inspection. The interviews are summarized below. Appendix F provides the complete interviews.

Residents – The EPA conducted door-to-door outreach on December 4, 2018 and interviewed four homeowners who live near the Site; however, left information for five additional properties. Several residents interviewed indicated that they were not familiar with the Site and were more interested in discussing other abandoned facilities in the area. EPA noted those concerns. They also indicated that this visit was the first time ever being contacted by the EPA. One resident indicated that as a boy he remembers his father being employed there but expressed no significant concerns. He saw it as a reliable source of income and stability for himself and his family. Residents, except for one, expressed interest in being added to the Site's mailing list. EPA also visited the local information repository to ensure the Administrative Record is available for public review. During the visit to the Middle Tyger River Library, the EPA provided Site information to library staff.

Sara MacDonald is a Hydrogeologist in the Bureau of Land and Waste Management Federal Remediation Program at SCDHEC. Ms. MacDonald's overall impression is that the Site's remedy is "functioning as intended" and the ICs "are appropriate and help protect human health." However, due to "hits above the MCLs in GW-12", (she did express concern of the possibility that "the remedy is threatened by an outside source."

Nick Odom is the Springs Industries representative for the Site. Mr. Odom states that the remedy is "excellent" and has "fulfilled the purpose set in the beginning. It was implemented in a quality manner and is maintained in a quality manner." Mr. Odom sees "no justification at this time for any changes in the remedy management and operation" as the remedy has shown "superior performance and sustained protection of human health and the environment."

Aaron Council is the O&M contractor (AECOM) representative for the Site. Mr. Council's overall impression is that the remedy "has performed as designed and has protected the surrounding environment and community." Regarding O&M, Mr. Council stated "Springs Industries contracts with a local provider to inspect the site every other month or as needed. The contractor mows, cleans, checks the ingress and egress road, trims trees and maintains the fence." He also indicated that there have not been any significant changes to O&M in the last five years.

Data Review

On January 8 and 9, 2019, AECOM collected groundwater, sediment, and surface water samples for laboratory analysis of PAH and metals constituents. Groundwater and surface water data collected at this sampling event indicates that concentrations of PAHs have remained virtually non-detect at all sample locations. However, dissolved iron concentrations in surface water locations SW-8 and SW-9 have increased relative to historical data. Tables 6-8 summarize the sample results for the January 2019 sampling event. The tables also show historical data for each sample location dating back to 2005. All sample locations are displayed on Figure 2.

Table 6
Springs Industries, Inc.
Lyman Dyeing and Finishing Site
Lyman, South Carolina

Analytical Data
January 2019 Groundwater Sampling Event

Constituent	Constituent MCL	GW-01	GW-06	GW-07	GW-08	GW-09	GW-10	GW-11	GW-12	GW-13	GW-14
		1/8/2019	1/9/2019	1/8/2019	1/9/2019	1/9/2019	1/9/2019	1/9/2019	1/8/2019	1/9/2019	1/8/2019
Polynuclear Aromatic Hydrocarbons (Method 8270D)											
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Acenaphthene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]anthracene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[b]fluoranthene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	NSL	ND	ND	ND	ND	ND	ND	0.14	ND	ND	ND
Dibenzo[a,h]anthracene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno[1,2,3-c,d]pyrene	NSL	ND	ND	ND	ND	ND	ND	0.063	ND	ND	ND
Naphthalene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	NSL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dissolved Metals (Arsenic and Thallium by Method 6020A)											
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Arsenic	10	ND	ND	ND	ND	ND	ND	ND	ND	2	ND
Iron	NSL	ND	ND	79.9	ND	ND	ND	ND	ND	25,500	65.1
Thallium	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals (Method 6010C)											
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Arsenic	10	ND	ND	0.24	ND	ND	ND	0.069 J//	0.12	2.4	0.079 J//
Iron	NSL	ND	35.5 J//	1,140	227	398	57.1	575	342	27,900	1,180
Thallium	2	ND	ND	0.086 J//	ND	ND	ND	ND	ND	ND	ND

NOTES:

1. Sample analysis performed by Pace Analytical, Inc. (Pace) of Huntersville, North Carolina.
2. ND: compound not detected in sample.
3. ug/L = micrograms per liter.
4. NSL = No Standard Listed (No MCL established for this compound).
5. MCL = Maximum Contaminant Level (USEPA Regional Screening Level Summary Table, November 2018)

Table 7
Springs Industries, Inc.
Lyman Dyeing and Finishing Site
Lyman, South Carolina

Analytical Data
January 2019 Surface Water Sampling Event

Constituent	Constituent MCL	SW-01	SW-07	SW-08	SW-09	SW-10 (DUP-2)	SW-11
		1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
Polynuclear Aromatic Hydrocarbons (Method 8270D)							
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Acenaphthene	NSL	ND	ND	ND	ND	ND	ND
Acenaphthylene	NSL	ND	ND	ND	ND	ND	ND
Anthracene	NSL	ND	ND	ND	ND	ND	ND
Benzo[a]anthracene	NSL	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	0.2	ND	ND	ND	ND	ND	ND
Benzo[b]fluoranthene	NSL	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	NSL	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	NSL	ND	ND	ND	ND	ND	ND
Chrysene	NSL	ND	ND	ND	ND	ND	ND
Dibenzo[a,h]anthracene	NSL	ND	ND	ND	ND	ND	ND
Fluoranthene	NSL	ND	ND	ND	ND	ND	ND
Fluorene	NSL	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	NSL	ND	ND	ND	ND	ND	ND
Naphthalene	NSL	ND	ND	ND	ND	ND	ND
Phenanthrene	NSL	ND	ND	ND	ND	ND	ND
Pyrene	NSL	ND	ND	ND	ND	ND	ND
Dissolved Metals (Arsenic and Thallium by Method 6020A)							
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Arsenic	10	0.067 J//	0.077 J//	0.49	1.1	ND	0.11
Iron	NSL	481	450	12,900	53,900	426 /J/A	921
Thallium	2	ND	ND	ND	ND	ND	ND
Total Metals (Method 6010C)							
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Arsenic	10	0.18	0.2	0.7	1.6	0.22	0.29
Iron	NSL	1,360	1,410	16,800	64,300	1,700	2,740
Thallium	2	ND	ND	ND	ND	ND	ND

NOTES:

1. Sample analysis performed by Pace Analytical, Inc. (Pace) of Huntersville, North Carolina.
2. ND: compound not detected in sample.
3. ug/L = micrograms per liter.
4. NSL = No Standard Listed (No MCL established for this compound).
5. MCL = Maximum Contaminant Level (USEPA Regional Screening Level Summary Table, November 2018)

Table 8
Springs Industries, Inc.
Lyman Dyeing and Finishing Site
Lyman, South Carolina

Analytical Data
January 2019 Sediment Sampling Event

Constituent	Constituent Industrial RSL	SD-01	SD-07	SD-08 (DUP-1)	SD-09	SD-10	SD-11
		1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019	1/8/2019
Polynuclear Aromatic Hydrocarbons (Method 8270D)							
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Acenaphthene	45,000	ND	ND	ND	ND	ND	ND
Acenaphthylene	NSL	ND	ND	0.0022 J//	ND	ND	ND
Anthracene	230,000	ND	ND	0.0125 J//	0.0057 J//	ND	0.0063 J//
Benzo[a]anthracene	21	ND	ND	0.0097 J//	0.030	0.0013 J//	0.0273
Benzo[a]pyrene	2.1	ND	ND	0.005 J//	0.0274	ND	0.0255
Benzo[b]fluoranthene	21	ND	ND	0.0066 J//	0.0451	0.0039 J//	0.0407
Benzo[g,h,i]perylene	NSL	ND	ND	ND	0.018 J//	ND	0.0167
Benzo[k]fluoranthene	210	ND	ND	0.0037 J//	0.0154 J//	ND	0.0136 J//
Chrysene	2,100	ND	ND	0.0071 J//	0.029	0.0031 J//	0.0283
Dibenzo(a,h)anthracene	2.1	ND	ND	ND	0.0056 J//	ND	0.0053 J//
Fluoranthene	30,000	ND	ND	0.0195	0.0571	0.0058 J//	0.0537
Fluorene	30,000	ND	ND	0.005 J//	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	21	ND	ND	ND	0.0168 J//	ND	0.0163
Naphthalene	17	ND	ND	ND	0.0082 J//	ND	0.004 J//
Phenanthrene	NSL	ND	ND	0.0106 J//	0.0234 J//	ND	0.0252
Pyrene	23,000	ND	ND	0.0179	0.0463	0.0045 J//	0.0416
Total Metals (Arsenic and Iron by Method 6010C and Thallium by Method 6020A)							
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Iron	820,000	5,810 /M/m	3,050	8,800 /J/A	40,000	10,800	7,150
Arsenic	3	0.95 J//	0.99 J//	1.3	5.6	1.6	1.3
Thallium	1.2	ND	ND	ND	ND	ND	ND

NOTES:

1. Sample analysis performed by Pace Analytical, Inc. (Pace) of Huntersville, North Carolina.
2. ND: compound not detected above associated method detection limit (MDL)
3. mg/kg = milligrams per kilogram.
4. NSL = No Standard Listed (No RSL established for this compound)
5. RSL = Regional Screening Level (USEPA, November 2018)

Site Inspection

The inspection of the Site was conducted on 12/4/2018. In attendance were Evan Ethridge, Sara MacDonald, Tim Kadar, and Joel Padgett of SCDHEC; Keith Griffin of Springs Industries; Aaron Council of AECOM; and Kerisa Coleman, Sharon Thomas and Yvonne Jones of the EPA. The purpose of the inspection was to assess the protectiveness of the remedy.

Participants toured the Site and observed the site perimeter, monitoring wells, and landfill cap. The landfill cap was in good condition with vegetation completely covering the top soil layer and showing no signs of excessive erosion. Monitoring wells were all secured and labeled. The chain-link fence surrounding the Site, the gate, and access roads were all in good condition. The completed site inspection checklist is included in Appendix G. Photographs from the site inspection are included in Appendix H.

EPA and SCDHEC staff visited the designated Site Repository located at the Middle Tyger Branch Library at 170 Groce Road, Lyman, South Carolina. Staff determined the Site documentation was complete through 2014.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes. The review of documents and the results of the site inspection indicate the remedy is functioning as intended by the 2003 Action Memorandum and the 2009 ROD. The contaminated soils and debris have been addressed through multiple response actions including the 2005 NTCRA. Contaminated soils and debris were removed from the Site and appropriately disposed off-site. Soils located in the northern and southern areas of the Site were excavated, compiled and capped in the Source Area, preventing exposure to human and ecological receptors, migration of contaminants from site soils to groundwater and surface water and protecting the SJWD water treatment plant intake. Post-Construction monitoring of groundwater, surface water, and sediments at perimeter and sentinel locations was implemented along with ICs including a restrictive covenant that prohibits residential use, groundwater use, exposure to contaminated site soils, and interference with the engineered cap. Construction of a chain-linked fence with warning signs around the perimeter of the Site control access.

Generally, the concentrations of the COCs in surface water and sediment have decreased since the remedy was put in place. Groundwater and surface water data collected during the January 2019 sampling event indicates that concentrations of PAHs have remained virtually non-detect at all sample locations and metals have remained stable relative to historical data.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes. The Site is part of a larger industrial complex and the future land use for this complex is expected to remain industrial in nature. The land use for the Site is expected to remain undeveloped. However, the 2005 NTCRA significantly reduced the threats to human health and the environment posed by highly contaminated soil. Soils located in the northern and southern areas of the Site were excavated, compiled and capped in the Source Area preventing exposure to human and ecological receptors, migration of

contaminants from site soils to groundwater and surface water and protecting the SJWD water treatment plant intake.

Soil

The COCs shown in Table 2 were identified as the primary contributors to the risk levels for site soils using an Industrial exposure scenario. As part of the remedy, soils were removed from the Source Area and two Hot Spot areas on the Site; an engineered low permeability soil cover was constructed, contaminated soils were placed under the soil cover and institutional controls were put into place preventing exposure to human and ecological receptors. Except for arsenic, target cleanup levels for all soil COCs were less than current RSLs. The target cleanup level for arsenic (3.4 mg/kg) is marginally higher than the current RSL (3.0 mg/kg).

Groundwater, Surface Water, and Sediment

The 2009 ROD for the Site states “Although several constituents were detected in the groundwater, surface water, and sediments, there was no significant impact to these media identified at the Site or downstream from the Site. Therefore, the concentration levels did not warrant remediation.” Therefore, no RAOs or cleanup goals were established for these pathways, but monitoring is conducted to monitor the long-term progress of the NTCRA toward the prevention of COC migration from the Site soils to groundwater, surface water, and sediments. All groundwater and surface water locations monitored during the January 2019 sampling event were non-detect for PAHs. All sediment samples monitored during this event were detected below the target cleanup levels summarized in Table 2. However, dissolved iron concentrations in surface water locations SW-8 and SW-9 have increased relative to historical data.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the current protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
Sitewide

OTHER FINDINGS

Several additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- The EPA will update the information repository with site-related documents since 2014.

- 1,4-dioxane was detected at the SJWD water treatment plant during the sampling efforts for the third Unregulated Contaminant Monitoring Rule (UCMR 3). The UCMR program provides the EPA's Office of Ground Water and Drinking Water with a way to collect data on emerging contaminants. 1,4-dioxane was part of the UCMR 3. The sampling was conducted between 2013 and 2014. Participating systems collected drinking water samples at the entry point to the distribution system. The samples were tested for UCMR contaminants at EPA certified laboratories. A summary of the findings are as follows:
 - 1,4-dioxane was detected in each of the four samples collected from the SJWD system.
 - 1,4-dioxane was detected at a concentration of 0.42 µg/L in November 2013 and at a concentration of 0.57 µg/L in February 2014.
 - 1,4-dioxane was detected at a concentration of 0.36 µg/L in May 2014 and at a concentration of 0.25 µg/L in August 2014.
 - EPA's Regional Screening Level for 1,4-dioxane in tap water is 0.46 µg/L. Generally, Regional Screening Levels are considered to be protective for humans.

No potential source in the area has been identified. The EPA and the SCDHEC will continue to evaluate potential regulatory approaches to the detections in the SJWD system.

- Pursuant the 2008 Declaration of Covenants and Restriction, Springs should submit the annual Statement of Maintenance to SCDHEC every year by May 31st.

VII. PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Protective	<i>Planned Addendum Completion Date:</i> NA
<i>Protectiveness Statement:</i> The remedy is protective. There are currently no completed exposure pathways. The NTCRA significantly reduced the threats to human health and the environment posed by highly contaminated soil. Contaminated soils and debris were removed from the Site and appropriately disposed off-site. Soils located in the northern and southern areas of the Site were excavated, compiled and capped in the Source Area, preventing exposure to human and ecological receptors, migration of contaminants from site soils to groundwater and surface water and protecting the SJWD water treatment plant intake.	

VIII. NEXT REVIEW

The next five-year review report for the Lyman Dyeing and Finishing Site is required five years from the completion date of this review.

APPENDIX A – LIST OF DOCUMENTS REVIEWED

- **Ecological Risk Assessment – Step 3 Problem Formulation**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, May 20, 2003 (URS, 2003).
- **Baseline Human Health Risk Assessment**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, July 3, 2003 (URS, 2003).
- **Remedial Investigation Report**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, July 3, 2003 (URS, 2003a).
- **Focused Feasibility Study – Revision 1**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, July 9, 2003 (URS, 2003b).
- **Administrative Order on Consent for the Non-Time-Critical Removal Action**, Lyman Dyeing and Finishing Superfund Site, Lyman, Spartanburg County, South Carolina, June 2004 (USEPA, 2004).
- **Non-Time-Critical Removal Action Removal Design Work Plan**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, August 2, 2004 (URS, 2004a).
- **Non-Time-Critical Removal Action Sampling and Analysis Plan**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, August 2, 2004 (URS, 2004b).
- **Final Design Criteria Report**, Lyman Dyeing and Finishing Site, Lyman South Carolina, May 23, 2005 (URS, 2005).
- **Final Removal Action Completion Report**, Lyman Dyeing and Finishing Site, Lyman South Carolina, November 2006 (URS, 2006).
- **Comprehensive Monitoring Report November 2004 – November 2006**, Lyman Dyeing and Finishing Site, Lyman South Carolina, April 2007 (URS, 2007).
- **Comprehensive Monitoring Report – June and November 2007**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, February 2008 (URS, 2008).
- **Comprehensive Monitoring Report – July 2008 and May 2009**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, September 2009 (URS, 2009).
- **Comprehensive Monitoring Report – June 2010**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, September 2010 (URS, 2010).
- **Comprehensive Monitoring Report – April 2011**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, July 2011 (URS, 2011).
- **Comprehensive Monitoring Report – April 2012**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, July 2012 (URS, 2012).
- **Comprehensive Monitoring Report – April 2013**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, July 2013 (URS, 2013).
- **Comprehensive Monitoring Report – May 2014**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, May 2014 (URS, 2014).
- **Groundwater, Surface Water, and Sediment Sampling Results - January 2019**, Lyman Dyeing and Finishing Site, Lyman, South Carolina, January 2019

APPENDIX B – CURRENT SITE STATUS

Environmental Indicators

- Current human exposures at the Site are under control.

Are Necessary Institutional Controls in Place?

All Some None

Has EPA Designated the Site as Sitewide Ready for Anticipated Use?

Yes No

Has the Site Been Put into Reuse?

Yes No

APPENDIX C - CHRONOLOGY OF SITE EVENTS

Event	Date
Lyman Dyeing and Finishing operated a disposal site on the property	1924-1965
Discovery	12/1991
EPA Preliminary Assessment	01/27/1993
EPA Site Investigation	09/16/1993
Springs Waste Removal Activities	1994/1997
EPA Field Investigation Report	06/01/1997
EPA Expanded Site Inspection	05/11/1998
EPA Aerial Photographic Study	06/1998
Hazard Ranking Score Package	1998
Administrative Order on Consent (AOC) for the Remedial Investigation/Focused Feasibility (RI/FFS) Report	6/10/1999
Remedial Investigation (RI) Report	07/03/2003
Focused Feasibility Study (FFS) Report	07/09/2003
AOC for the Non-Time Critical Removal Action (NTCRA)	06/2/2004
NTCRA Removal Design Work Plan	08/02/2004
NTCRA Sampling and Analysis Plan	08/02/2004
Final Design Criteria Report	05/23/2005
Removal Action Begins	06/2005
Final Removal Action Completion Report	11/2006
Comprehensive Monitoring Report November 2004-November 2006	04/2007
Comprehensive Monitoring Report June and November 2007	02/2008
Comprehensive Monitoring Report July 2008 and May 2009	09/2009
Record of Decision	09/29/2009
Comprehensive Monitoring Report June 2010	09/2010
Comprehensive Monitoring Report April 2011	07/2011
Comprehensive Monitoring Report April 2012	07/2012
Comprehensive Monitoring Report April 2013	06/2013
Comprehensive Monitoring Report May 2014	05/2014
First Five-Year Review for the Site	09/2014
Comprehensive Monitoring Report January 2019	01/2019

APPENDIX D - INSTITUTIONAL CONTROLS DOCUMENTS

INSTITUTIONAL CONTROLS DOCUMENTS

1. Declaration of Covenants and Restrictions between Springs Industries, Inc., and the South Carolina Department of Health and Environmental Control recorded June 2, 2008, in Deed Book 91-M page 537 (Instrument # DEE-2008-26489) in the Office of the register of Deeds for Spartanburg County, South Carolina.
2. Subordination Agreement from the Town of Lyman recorded June 2, 2008, in Deed Book 91-M page 546 (Instrument # DEE-2008-26490) in the Office of the register of Deeds for Spartanburg County, South Carolina.
3. The original plat, which was recorded in connection with the Declaration of Covenants and Restrictions between Springs Industries, Inc., and the SCDHEC, was recorded on June 2, 2008, in Plat Book 163 page 184 (Instrument # PLT-2008-26488).
4. The Material Management and Health and Safety Plan

Table 3 summarizes the institutional controls required by the 2003 Action Memorandum and continued under the 2009 ROD. Figure 3 shows the property parcel impacted by the institutional controls. The IC instruments are included in Appendix D.

GAINES & WALSH
ATTORNEYS AT LAW
P.O. BOX 5156
SPARTANBURG, SOUTH CAROLINA 29304

TRACY J. GAINES (1909-1980)
THOMAS E. WALSH (1919-1990)

WILLIAM E. WALSH
DAVID L. WALSH

STREET ADDRESS:
150 ARCHER STREET
SPARTANBURG, SC 29306

TELEPHONE 864-583-6363
FAX 864-583-8446

June 24, 2008

Mr. Matthew L. Hicks
Associate Regional Counsel
U.S. Environmental Protection Agency,
Region 4 Office of Environmental Accountability,
13th Floor Atlanta Federal Center
61 Forsyth Street, S. W.
Atlanta, Georgia 30303-8960

Re. Springs Industries

Dear Mathew:

I enclose the following original documents:

1. Declaration of Covenants and Restrictions between Springs Industries, Inc. and the South Carolina Department of Health and Environmental Control recorded June 2, 2008 in Deed Book 91-M page 537 (Instrument # DEE-2008-26489) in the Office of the register of Deeds for Spartanburg County, South Carolina.
2. Subordination Agreement from the Town of Lyman recorded June 2, 2008 in Deed Book 91-M page 546 (Instrument # DEE-2008-26490) in the Office of the register of Deeds for Spartanburg County, South Carolina.

The full size plat was recorded in Plat Book 163 page 184 but has not yet been returned to us. Plat generally take longer to be returned from the recording office. If I can be of further assistance, please give me a call.

Sincerely yours,

Gaines & Walsh



William E. Walsh

enclosures

cc: John Bottini (w/enclosures)



STATE OF SOUTH CAROLINA)
)
COUNTY OF SPARTANBURG) **DECLARATION OF COVENANTS
AND RESTRICTIONS**

THIS DECLARATION OF COVENANTS AND RESTRICTIONS (Declaration) is made and entered into this 18th day of February 2008 by Springs Industries, Inc., a South Carolina corporation (hereinafter referred to as Springs) and the South Carolina Department of Health and Environmental Control (Department).

RECITALS

WHEREAS, this Declaration is entered into pursuant to S.C. Code §44-56-200 et seq.; and

WHEREAS, Springs is the owner of certain real property in Spartanburg County, South Carolina, more particularly described in Exhibit A attached hereto and incorporated herein by reference ("Property"); and

WHEREAS, the Property has been the subject of a non-time-critical removal action pursuant to an Administrative Order on Consent [CER-04-2004-3780] (AOC) dated June 2, 2004, entered into by the United States Environmental Protection Agency (EPA) and Springs under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601, et seq.; and

WHEREAS, Springs has remediated the Property to industrial-use standards as required by the AOC; and

WHEREAS, the Property may be used for certain purposes without further remediation in accordance with the provisions of the AOC; and

WHEREAS, Springs has agreed to impose certain restrictions on the manner in which the Property may be developed and used in the future; and

WHEREAS, it is the intention of all parties that EPA is a third party beneficiary of said restrictions and said restrictions shall be enforceable by the EPA, Department, and their successor agencies; and

WHEREAS, EPA has worked closely with the Department in developing the AOC, EPA will assist the Department in monitoring and enforcing this Declaration.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that Springs hereby declares and covenants on behalf of itself, successors, and assigns that the Property described in Exhibit A shall be held, mortgaged, transferred, sold, conveyed, leased,

DEE-2008-26489
Recorded 9 Pages on 6/2/2008 4:12:12 PM
Recording Fee: \$15.00 Documentary Stamps: \$0.00
Office of Register of Deeds, Spartanburg, S.C.
Stephen Ford, Register



occupied, and used subject to the to the following restrictions, which shall touch and concern and run with the title to the Property.

1. Springs covenants for itself, its heirs, successors and assigns that the Property shall not be used for the following purposes without prior approval from EPA and the Department or their successor agencies: residential, agricultural, child day care facilities, schools, or elderly care facilities.
2. Springs covenants for itself, its heirs, successors and assigns that if the Property is to be used for recreational purposes, prior approval must be obtained from EPA and the Department or their successor agencies.
3. Springs covenants for itself, its heirs, successors and assigns that groundwater beneath the Property shall not be used for consumptive use or other purposes without prior approval from EPA and the Department or their successor agencies.
4. Springs covenants for itself, its heirs, successors and assigns that the Property shall not be used in a manner that would interfere with the cap (protective landfill cover) on the Property without prior approval from EPA and the Department or their successor agencies.
5. Springs covenants for itself, its heirs, successors and assigns that there shall be no drilling of groundwater wells on the Property without prior approval from EPA and the Department or their successor agencies.
6. Springs covenants for itself, its heirs, successors and assigns that there shall be no digging, excavation, grading or other disturbance of the Property to a depth exceeding twelve (12) inches without prior approval from EPA and the Department or their successor agencies.
7. Springs covenants for itself, its heirs, successors and assigns that the EPA, the Department, their successor agencies, and all other parties performing response actions under EPA's or the Department's oversight shall be provided reasonable access for (i) inspecting the Property, (ii) monitoring, (iii) verifying information, (iv) sampling the Property, (v) assessing the need for additional response or quality control practices, (vi) implementing the work required under the AOC, (vii) inspecting and copying records, (viii) assessing the responsible party's compliance, (ix) assessing compliance with existing land use restrictions under the AOC and this Declaration, or (x) to take samples as may be necessary to enforce this Declaration.
8. The covenants and restrictions set forth herein shall run with the title to the Property and shall be binding upon Springs, its heirs, successors and assigns. It is expressly agreed that the Department and EPA shall have the right to enforce

these covenants and restrictions upon Springs, its heirs, successors and assigns. Springs and its heirs, successors, and assigns shall include the following notice on all deeds, mortgages, plats, or any legal instruments used to convey any interest in the Property (failure to comply with this paragraph does not impair the validity or enforceability of these covenants):

NOTICE: This Property Subject to Declaration of Covenants and Restrictions and any subsequent Amendments Recorded at

-
9. Springs, its heirs, successors and assigns and any subsequent purchaser of the Property shall submit to the Department and EPA a statement of maintenance of the covenants and restrictions as set forth above annually on May 31st of every year. This reporting requirement is the obligation of each owner of the Property, or portion of the Property, as of May 31st of each year. Once title to all or a portion of the Property has been conveyed by Springs or any subsequent owner, such predecessor in title shall no longer have any responsibility for submission of the Report with respect to the portion of the Property it previously owned. Springs, its heirs, successors and assigns and any subsequent purchaser of the Property shall provide the following notice in each Report:

“The covenants and restrictions applicable to this Property are being properly maintained, and no development or use which is inconsistent with the Declaration of Covenants and Restrictions has occurred since the date of the last annual report.”

10. This Declaration shall remain in place until such time as the Department has made a written determination that the covenants and restrictions set forth herein are no longer necessary. The Department shall not consent to any such termination unless the requirements of the AOC have been met. This Declaration shall not be amended without the written consent of the Department or its successor agency. The Department shall not consent to any such amendment or termination without the consent of EPA.
11. Pursuant to the express authorization of EPA provided in Exhibit B, this Declaration shall replace and render null and void the Restrictive Covenants on the Property previously recorded on December 2, 2005, in Deed Book 84-N, page 514 in the Office of Register of Deeds for Spartanburg County.
12. It is expressly agreed that EPA is not the recipient of a real property interest but is a third party beneficiary of the Declaration of Covenants and Restrictions and, as such, has the rights of enforcement.

13. This Declaration only applies to the Property expressly identified in Exhibit A and does not impair the Department's and EPA's authority with respect to the Property or other real property under the control of Springs.

IN WITNESS WHEREOF, **Springs Industries, Inc.**, has caused this instrument to be executed as of the date first above written.

WITNESSES:

Springs Industries, Inc.

A SOUTH CAROLINA CORPORATION

Elizabeth A. Herbert
India K. Stines

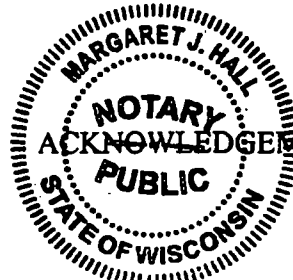
By *[Signature]*

John Comerford
Vice President and General Counsel

STATE OF WISCONSIN

COUNTY OF DANE

)
)



I, *Margaret Hall* (Notary Public), do hereby certify that, *John Comerford*, an authorized representative of the **Springs Industries, Inc.**, personally appeared before me this day and acknowledged the due execution of the foregoing instrument, on behalf of the **CORPORATION**.

Witness my hand and official seal this *22nd* day of February, 2008.

Margaret J. Hall
Notary Public for *State of WI, County of Dane*
My Commission Expires: *9/26/10*

IN WITNESS WHEREOF, the Department has caused this instrument to be executed as of the date first above written.

WITNESSES:

[Signature]

Kathy Rogers

South Carolina Department of Health and Environmental Control

By: [Signature]

Robert W. King, Jr., P.E., Deputy Commissioner, Environmental Quality Control

South Carolina Department of Health and Environmental Control

STATE OF SOUTH CAROLINA)
)
COUNTY OF RICHLAND)

ACKNOWLEDGEMENT

I, Michael W. Tempel (Notary Public), do hereby certify that, Robert W. King, Jr., P.E., Deputy Commissioner Environmental Quality Control of the South Carolina Department of Health and Environmental Control, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal this 21st day of April, 2008

[Signature]

Notary Public for South Carolina
My Commission Expires: October 11, 2009

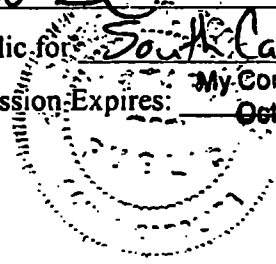


Exhibit A

Lyman Superfund Parcel
 Property Description
 Gross Road, Lyman, SC

24.77 ACRE TRACT

Beginning at an iron pin located on the southern right-of-way of CSX Railroad (115' right-of-way) and being the common corner of a portion of Tax Parcel 5-15-00-006.2; thence S 27-29-13 W for 9.54 feet to a fence corner; thence S 15-50-35 E for 26.10 feet to a fence corner; thence S 14-34-12 W for 44.99 feet to a fence corner; thence S 30-58-46 W for 36.86 feet to a fence corner; thence S 12-04-18 E for 50.83 feet to a fence corner; thence S 24-26-08 W for 224.87 feet to an iron pin; thence S 01-22-16 E for 49.60 feet to an iron pin; thence S 24-29-28 E for 34.52 feet to an iron pin; thence S 52-27-11 E for 162.64 feet to an iron pin; thence S 52-30-08 E for 111.98 feet to an iron pin; thence N 67-32-38 E for 45.08 feet to an iron pin; thence S 66-25-05 E for 475.06 feet to an iron pin; thence along the common line of the Town of Lyman (waste water treatment plant), S 12-23-39 E for 315.10 feet to a point located in the centerline of the Middle Tyger River, crossing an iron pin at 253.16 feet; thence along the meanders of said river, N 70-02-48 W for 146.52 feet to a point; thence N 65-38-20 W for 130.07 feet to a point; thence N 75-05-46 W for 27.16 feet to a point; thence S 75-17-07 W for 29.31 feet to a point; thence S 51-51-16 W for 79.30 feet to a point; thence S 27-04-23 W for 39.95 feet to a point; thence S 07-16-32 W for 50.66 feet to a point; thence S 01-14-39 W for 120.02 feet to a point; thence S 23-25-54 E for 540.58 feet to a point; thence S 04-52-28 E for 72.29 feet to a point; thence S 41-08-30 W for 96.67 feet to a point; thence S 66-50-26 W for 77.71 feet to a point; thence S 78-20-50 W for 63.56 feet to a point; thence N 81-13-21 W for 29.64 feet to a point; thence S 77-26-26 W for 36.95 feet to a point; thence S 80-36-52 W for 31.89 feet to a point; thence N 76-50-53 W for 67.04 feet to a point; thence N 74-15-27 W for 421.75 feet to a point; thence N 69-07-14 W for 79.29 feet to a point; thence N 28-31-02 W for 118.83 feet to a point; thence N 10-50-33 W for 149.44 feet to a point; thence N 04-05-46 E for 138.39 feet to a point; thence N 13-36-00 E for 151.16 feet to a point; thence N 26-38-57 E for 152.71 feet to a point; thence N 31-53-47 E for 167.73 feet to a point; thence N 26-01-47 E for 108.66 feet to a point; thence N 01-15-38 E for 78.77 feet to a point; thence N 11-45-50 W for 121.32 feet to a point; thence N 18-21-04 W for 251.90 feet to a point; thence N 16-26-04 W for 86.98 feet to a point; thence leaving said centerline, N 24-25-37 E for 445.30 feet to an iron pin located on the southern right-of-way of CSX Railroad; thence along said right-of-way, S 63-39-20 E for 136.91 feet to the Point of Beginning. Said tract contains 24.77 acres, more or less.

This property is shown on that new plat of survey prepared for Springs Industries by Freeland and Associates, Inc. dated October 12, 2005 to be recorded herewith. Reference is made to said plat for a more accurate and perfect description.

SEE PLAT BOOK 163 PAGE 184

Exhibit B to Declaration of Covenants and Restrictions

Authorization

As provided in Paragraph 11 of the Declaration of Covenants and Restrictions to which this Authorization is attached, the United States Environmental Protection Agency (EPA) has determined that the Declaration of Covenants and Restrictions shall replace and render null and void the Restrictive Covenants previously recorded on December 2, 2005, in Deed Book 84-N, page 514 in the Office of the Register of Deeds for Spartanburg County, South Carolina.

By: Yvonne O. Jones
Yvonne O. Jones
Remedial Project Manager
U.S. EPA, Region 4

Date: 2/14/08

Office of Register of Deeds
Spartanburg, South Carolina

Recorded in DEED
Book 91-M Page 537

Dorothy Earle
Register of Deeds,
Spartanburg, South Carolina

WALS 17

STATE OF SOUTH CAROLINA

SUBORDINATION AGREEMENT

COUNTY OF SPARTANBURG

RECITALS

A. Springs Industries, Inc. ("Springs") conveyed a right-of-way and easement for a sewer line (the "Easement Agreement") across the real property described therein (the "Property") to the Town of Lyman by agreement dated March 12, 1997. The Easement Agreement was recorded on March 13, 1997 in Deed Book 65-P, page 191 in the Office of the Register of Deeds for Spartanburg County.

B. On May 18, 2004, Springs entered into an Administrative Order on Consent for Removal Action ("Consent Order") with the United States Environmental Protection Agency ("EPA") to remove hazardous materials at the Property. Consistent with the requirements of the Consent Order, Springs signed a Declaration of Covenants and Restrictions dated 18 February 2008 (the "Declaration") with the South Carolina Department of Health and Environmental Control encumbering the Property with certain covenants and restrictions for the protection of human health and the environment from residual contaminants on the Property. The Declaration was recorded on May 27, 2008 in Deed Book 91M at page 537 in the Office of Register of Deeds for Spartanburg County.

C. To ensure long-term effectiveness of the Declaration while at the same time allowing the Town of Lyman to use its sewer line in a safe manner, Town of Lyman has agreed to subordinate its rights under the Easement Agreement to the Declaration, subject to the terms and conditions below.

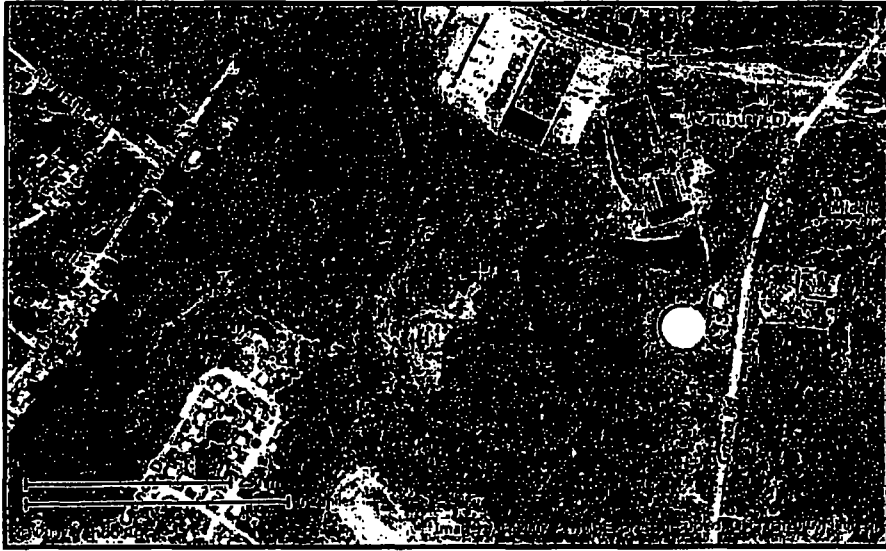
NOW THEREFORE,

FOR VALUE RECEIVED the Town of Lyman hereby subordinates its rights under the the Easement Agreement to the Declaration and the rights and interests of the beneficiaries thereunder. It is understood that by execution of this Subordination, the Declaration shall have the same validity and effect as if executed, delivered and recorded prior to the execution, delivery and recordation of the Easement Agreement.

Notwithstanding the foregoing, the Town of Lyman retains the right to perform all necessary maintenance and repairs to the sewer line that is the subject of the of the Easement Agreement provided that all maintenance and repairs are performed pursuant to the "Material Management and Health and Safety Plan for the Lyman Dyeing and Finishing Superfund Site" attached as Exhibit A and made a part hereof. Except as modified herein, the terms and provisions of the Easement Agreement, and the servitudes created thereby shall remain in full force and effect.

DEE-2008-26490
 Recorded 16 Pages on 6/2/2008 4:12:49 PM
 Recording Fee: \$22.00 Documentary Stamps: \$0.00
 Office of Register of Deeds, Spartanburg, S.C.
 Stephen Ford, Register





MATERIAL MANAGEMENT AND HEALTH AND SAFETY PLAN

Lyman Dyeing & Finishing Superfund Site
Lyman, Spartanburg County, South Carolina

EXHIBIT A

**THIS DOCUMENT
MARGINAL
FOR IMAGING**

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List of Acronyms

AOC	Administrative Order By Consent
BGS	Below Ground Surface
CFR	Code of Federal Regulations
COCs	Constituents of Concern
EPA	United States Environmental Protection Agency
FSS	Focus Feasibility Study
HASP	Health & Safety Plan
HDPE	High Density Polyethylene
LLDPE	Linear-Low Density Polyethylene
OSHA	Occupational Safety and Health Administration
PAH	Polynuclear Aromatic Hydrocarbons
RI	Remedial Investigation
SCDHEC	State of South Carolina Department of Health and Environmental Control
SJWD	Startex-Jackson-Wellford-Duncan Water District
SVOCs	Semi-Volatile Organic Compounds
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

This Material Management and Health and Safety Plan (Plan) should apply to and be implemented whenever there are plans to dig, excavate, grade or conduct other disturbance of the Lyman Dyeing and Finishing Site (Site) subject to the easement held by the Town of Lyman (Easement) at the Site to a depth exceeding three feet of the surface and exposing underlying soils which may contain potentially hazardous substances. The Site is depicted in the Site Vicinity map included as Figure 1 and the Easement is depicted in the As-Built drawing included as Figure 2. As indicated on Figure 2, the Easement runs along the rip-rap drainage swale at a width of 25 feet. The rip-rap drainage swale marks the northern boundary of the Soil Cover (as described in Section 1.4). This Plan should be implemented by the Easement holder to protect site workers, the public, and the environment from hazards which may arise during or as a result of excavation activities within the area of the Easement. This Plan presents procedures for the handling of materials potentially impacted with Polynuclear Aromatic Hydrocarbons (PAHs) and metals exceeding the U.S. Environmental Protection Agency (EPA) standards during such activities. The Town of Lyman should consider the information documented within this Plan when implementing the Town of Lyman's Health and Safety Plan and conducting excavation activities within the area of the Easement. Excavation activities include, but may not be limited to, the following:

- Sanitary sewer maintenance, repair, or realignment
- Removal of site-related materials

1.1 Physical Location

The Site is located in the southern portion of the Town of Lyman, Spartanburg County, South Carolina, within an oxbow of the Middle Tyger River, approximately one-half mile southeast of US Highway 292 and 800 feet west of Groce Road. The area surrounding the Site generally consists of industrial, residential and commercial properties. Startex-Jackson-Wellford-Duncan (SJWD) Water District operates a municipal water treatment plant east and adjacent to the Site. The SJWD water intake structure is located approximately 700 feet downstream of the Site.

1.2 Site History

From approximately 1924 to 1965, a waste disposal facility was operated on the peninsular shaped area located on the southern portion of the Site and adjacent to the Middle Tyger River. Waste inventory records for the Site were not maintained. Reportedly, solid wastes (e.g., empty waste metallic drums, waste paper, old and abandoned equipment, waste textile materials, etc.) generated from dyeing and finishing operations at the Site were placed within the Site boundary. Potential chemicals associated with the solid wastes from Site operations included residues of dyes, hydraulic fluids, waste solvents, adhesive materials, and office supplies. Municipal solid waste (e.g., old white goods, municipal trash, tires, etc.) generated by residents of the Town of Lyman was also placed within the Site boundary. No waste disposal has occurred at the Site since the late 1960's. Springs Industries, Inc. (Springs) acquired the Lyman Dyeing & Finishing Site from M. Lowenstein in 1986.

1.3 Summary of Site Assessments

From 1993 to 2003, EPA, the State of South Carolina Department of Health and Environmental Control (SCDHEC), and URS, on behalf of Springs, conducted extensive soil, water and sediment sampling at the Site to gather preliminary assessment information. Concentrations of lead and zinc were reported in surface water samples collected near the SJWD water treatment plant intake and were attributed to the Site by EPA. Trace amounts of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were also reported in several surface water samples. Concentrations of metals, PAHs, and pesticides exceeding background concentrations were reported in sediment samples collected near the SJWD water intake, the Site, and from upstream areas.

The results of a Remedial Investigation (RI), Focused Feasibility Study (FFS), and Voluntary Early Action indicated that soil was the only potential exposure pathway. The following constituents of concern (COCs) were identified as the primary contributors to the calculated risk levels in Site surface and subsurface soils: arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-c-d)pyrene, and iron. Areas identified as requiring further action consisted of the "Source Area" in the northern portion of the Site and two "Hot Spot Areas" located in the southern portion of the Site. Although several constituents were detected in the groundwater, surface water, and sediments, the concentrations did not warrant remediation. Therefore, there was no significant impact to groundwater, surface water, or sediments identified at the Site or downstream from the Site.

1.4 Summary of Removal Action Completed

As part of the FFS, several remedial alternatives were considered. After consideration of the various alternatives and allowing for public comment, EPA entered into an Administrative Order of Consent (AOC) with Springs whereby Springs agreed to perform a Non-Time-Critical Removal Action (Removal Action) at the Site. The Removal Action was performed by Envirocon and URS, on behalf of Springs, from June 2005 through October 2005.

A brief summary of the primary components of the Removal Action completed at the Site is provided below:¹

Source Area Excavation:

Soils located within the Source Area were excavated to a depth of 1 foot below ground surface (bgs). Those portions of the Source Area that extended into the Easement area were excavated to a depth of 3 feet bgs in the northeastern portion and 6 feet bgs in the northwestern portion. Approximately 5,010 tons of surface soils were excavated from the

¹ Additional details on the activities completed as part of the Removal Action as documented in the *Final Removal Action Completion Report*, Lyman Dyeing and Finishing Site, Lyman, South Carolina, November 2006 (URS, 2006).

Source Area and properly disposed of at an off-site landfill. Approximately 12,150 tons of previously screened soil (from the Voluntary Early Action) was placed in the Source Area to serve as backfill for low areas. A soil cover was constructed over the Source Area which consists of the following elements, from bottom to top (see Figure 2):

- waste material (less the 1 foot excavated and disposed and an off-site landfill);
- initial grading in the Source Area;
- shape fill in the Source Area;
- operational fill/cushion layer;
- 40-mil linear-low density polyethylene (LLDPE);
- 18 inches of protective soil cover;
- 12 inches of vegetative soil layer; and
- permanent grassing.

Hot Spot Areas Excavation:

Excavation of the Hot Spot Areas was conducted concurrent with the Source Area excavation. Soils were excavated to 1 foot bgs. Approximately 2,580 tons of surface soils were excavated from the Hot Spot Areas and properly disposed at an off-site landfill. Approximately 4,656 tons of EPA-approved backfill material was then placed over the Hot Spot Areas. Grassing of the Hot Spot Areas followed shortly thereafter (see Figure 2).

Erosion and Surface Water Control

Post-construction erosion and sediment control measures were implemented for slope stabilization and to minimize water intrusion into the Source Area. These measures include the installation of erosion matting, rip-rap armor, and a rip-rap drainage ditch. (see Figure 2).

Permanent Fencing and Gates and Installation of Signs

Approximately 2,800 linear feet of six-foot high galvanized chain-linked fence topped with barbed wire and interspersed with warning signs was installed around the perimeter of the Site to enclose the Source Area and Hot Spot Areas.

Post-Construction Monitoring Program

Upon completion of the Removal Action, URS, on behalf of Springs, implemented the Post-Construction Monitoring Program for the Site. This Program consists of semi-annual sampling of groundwater, surface water, and sediments at perimeter and sentinel locations for a period of up to five years. The objective of this Program is to monitor the long-term progress of the Removal Action toward the prevention of COC migration from the Site soils to groundwater, surface water, and sediments.

Implementation of Institutional Controls

Institutional controls are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use. The institutional control selected for the Site is a restrictive covenant designed to prevent exposure to contaminated site soils and to protect the integrity of the engineered soil cover.

1.5 Applicability of Plan

This Plan should apply to and be applicable whenever there are plans to dig, excavate, grade or conduct other disturbance of the Easement to a depth exceeding three feet of the surface and exposing underlying soils which may contain potentially hazardous substances (PAHs and metals exceeding the EPA standards). The activities include, but may not be limited to, the following:

- Sanitary sewer maintenance, repair, or realignment; and
- Removal and disposal of materials potentially impacted with PAHs and metals exceeding EPA Standards.

1.02 HEALTH AND SAFETY PROCEDURES

In order to protect Town of Lyman personnel from hazards which may arise during utility-related excavation within the area of the Easement, the Town of Lyman should implement its Health and Safety Plan (HASP). The HASP should comply with the regulations outlined by the Occupational Safety and Health Administration (OSHA) found in 29 Code of Federal Regulations (CFR) 1910.120. When implementing the HASP, the Town of Lyman should take into consideration the current Site conditions summarized in Section 1.4 and documented in the *Final Removal Action Completion Report*, Lyman Dyeing and Finishing Site, Lyman, South Carolina, November 2006 (URS, 2006).

A master copy of this document and any revisions, if necessary, should be maintained at the Town of Lyman Department of Public Works and a working copy should be brought on-site during all excavation activities within the area of the Easement. The Town of Lyman personnel should be trained in the HASP procedures and should take into consideration current Site conditions.

A daily "tailgate" meeting should be conducted at the beginning of the day in order to ensure that the Town of Lyman personnel and any contractors or subcontractors are aware of the health and safety issues anticipated for the day.

1.03 MATERIAL MANAGEMENT PROCEDURES

Should an event occur that requires the Town of Lyman to conduct utility-related excavation activities within the area of the Easement, the Town of Lyman should identify and implement procedures to protect public health, safety, and welfare and the environment from hazards which may arise from exposure to materials potentially impacted with hazardous substances. Material management procedures shall include, but are not limited to, the following:

A. General Procedures

- 1) Should an event occur, the Town of Lyman shall notify the representatives identified in Attachment B, and any other appropriate authorities. However, if required, excavation activities can commence immediately following the procedures outlined herein.

- 2) All on-site preparation and setup activities shall occur prior to the initiation of all utility-related excavation work. Material management procedures during on-site preparation and setup shall include the following:
- a. implement measures to protect sensitive human populations (e.g. Town of Lyman personnel, SJWD water facility, etc.) and environments (e.g. Middle Tyger River, wetlands, etc.) from exposure to materials potentially impacted with hazardous substances.
 - b. observe boundaries of soil cover and location of monitoring wells. Please refer to the As-built drawing (Figure 2).
 - c. implement measures to ensure backfill material (top three feet of soil) as described in Section 1.4 remains free of potential impacts from hazardous substances once excavated from the Easement area and is appropriately placed back in the Easement area (on top) once excavation is complete.
 - d. implement measures that may be necessary to contain materials potentially impacted with hazardous substances during the performance of utility-related excavation, including:
 1. measures to control dust and other environmental media (e.g. wetting soils);
 2. measures to decontaminate vehicles and equipment to minimize the spread of potentially impacted soil from the disposal site;
 3. measures to secure on-site excavations and stockpiles of potentially impacted material (e.g. silt screens and/or other containment objects); and,
 4. measures necessary to discontinue excavation activities where necessary to protect public health and safety.
- 3) Material management procedures during utility-related excavation work shall include the following:
- a. implement measures to protect sensitive human populations (e.g. Town of Lyman personnel, SJWD water facility, etc.) and environments (e.g. Middle Tyger River, wetlands, etc.) from exposure to materials potentially impacted with hazardous substances;
 - b. ensure that unauthorized persons do not enter the Site;
 - c. implement measures to ensure the soil cover and monitoring wells are not damaged. Please refer to the As-built drawing (Figure 2);
 - d. install sheets of 40 millimeter thick high density polyethylene (HDPE) on the existing ground surface within the area of the excavation to ensure excavated soil does not come in contact with the ground surface;
 - e. make every reasonable effort to secure and properly cover the excavated materials to minimize the potential for the excavated materials to impact other clean areas of the Site as well as the soil cover, adjacent wetlands, and the Middle Tyger River;
 - f. minimize soil erosion with silt screens and/or other containment objects;
 - g. segregate and stockpile the backfill material in a segregated area to ensure mixing with the subsurface soil (soil located three feet bgs) does not occur; and,
 - h. once work on the sewer line has been completed, replace the subsurface soil back in the hole first then follow with the backfill material (soil located in the top three feet).

B. Procedures Related to the Removal of Site-related Materials.

- 1) The Town of Lyman shall notify the representatives identified in Attachment B, and any other appropriate authorities.
- 2) No site-related materials shall be removed from the Site by representatives of the Town of Lyman, Springs, and/or representatives of Springs without approval from EPA and SCDHEC.

ATTACHMENT A
SITE FIGURES

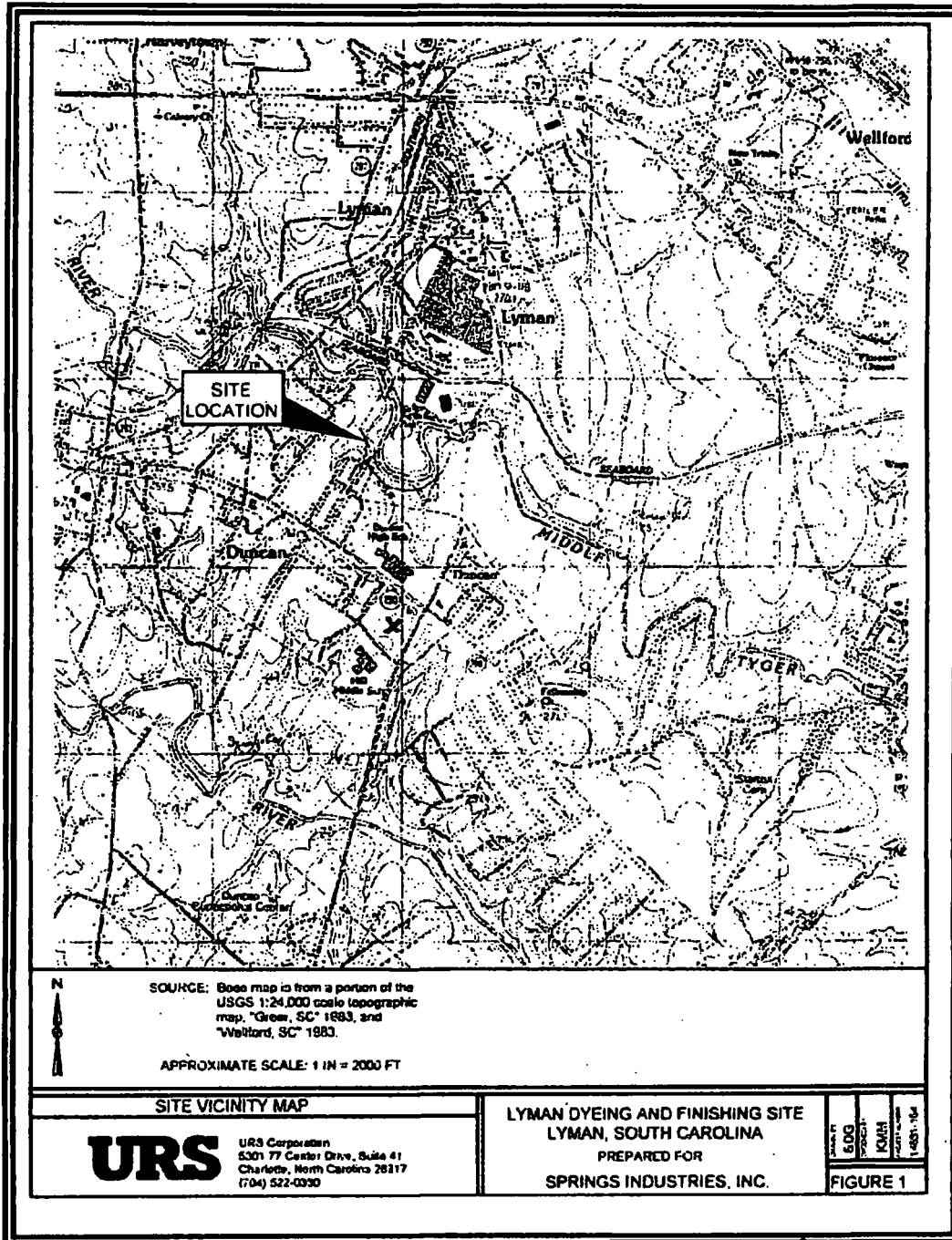


Figure 1
Lyman Dyeing & Finishing - Site Vicinity Map

**THIS DOCUMENT
MARGINAL
FOR IMAGING**

DEE:91-M PG 560

ATTACHMENT B
CONTACT INFORMATION

CONTACT INFORMATION

URS

Kristine MacWilliams, PE
Senior Environmental Engineer
URS Corporation - North Carolina
Two South Executive Park
6135 Park South Drive, Suite 300
Charlotte, NC 28210
704-522-0330 (office)
704-522-0063 (fax)
980-721-4811 (cell)
email: Kristine_MacWilliams@URSCorp.com

Springs Industries, Inc.

Mr. Keith Griffin
Water Quality Systems Manager
Springs Industries, Inc.
205 North White Street
Fort Mill, South Carolina 29716
803-547-1737 (office)
803-547-1516 (fax)
email: Keith.Griffin@springs.com

U.S. Environmental Protection Agency

Yvonne O. Jones
Remedial Project Manager
U.S. EPA, Region 4
Superfund Division
61 Forsyth Street
Atlanta, GA 30303
404-562-8793 (office)
404-562-8788 (fax)
email: Jones.yvonneO@epa.gov

Office of Register of Deeds
Spartanburg, South Carolina

Recorded in DEED
Book 91-M Page 546

Dorothy Earle
Register of Deeds,
Spartanburg, South Carolina

WALSH

APPENDIX E – PUBLIC NOTICE

SPARTANBURG

Herald-Journal RECEIVED

189 West Main Street, Spartanburg, SC 29306
864-562-7305

DEC 21 2018

STATE OF SOUTH CAROLINA
COUNTY OF SPARTANBURG

SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION

Personally appeared before me, a notary public in and for the State and County
aforesaid, Gwen Button, who having been duly sworn according to law, deposes
and says that he is a Representative of the Spartanburg Herald-Journal, a newspaper
published in Spartanburg, South Carolina, and that the attached Legal ad
was published for 1 time(s) in the following issues:

05178

11/26

Gwen Button

Sworn to and subscribed before me

This 27th day of November, 2018

Nancy Hogsed
Notary Public for South Carolina
My Commission Expires September 9th, 2025

NANCY HOGSED
Notary Public-State of South Carolina
My Commission Expires
September 09, 2025

PUBLIC NOTICE

Lyman Dyeing and Finishing
Spartanburg County, South Carolina

The U.S. Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (DHEC) are conducting a Five-Year Review of the former Lyman Dyeing and Finishing site located in Lyman, South Carolina. This is a federal Superfund site with ongoing cleanup activities. The purpose of the review is to evaluate remedial activities of the past five years and make sure that the cleanup continues to protect human health and the environment. During the review, DHEC and EPA staff will conduct interviews with local residents, officials, and others who are familiar with the site. We value input about site conditions and want to hear any concerns of the local community. You are encouraged to participate in the review by contacting us with your comments or questions through January 1, 2019.

The Five-Year Review process is expected to be complete in the Fall of 2019, at which time a report will be written on our findings. Any comments received about the site will be summarized in the report. The report will be available on EPA's website and at the Middle Tyger Branch Library at 170 Grace Road, Lyman, South Carolina. For more information about the Lyman Dyeing and Finishing site, please visit: <https://www.epa.gov/superfund/lyman-dyeing-finishing>

For comments, questions, or to participate in an interview, please contact either of the following:

Technical Comments: Yvonne Jones, EPA Remedial Project Manager, at (404) 562-8793, or by e-mail at jones.yvonne@epa.gov

Community Involvement:

Kerisa Coleman, EPA Community Involvement Coordinator, at (804) 562-8831, or by e-mail at colempk.kerisa@epa.gov

Donna Moye, DHEC Community Liaison, at (803) 898-1382, or by e-mail at moyedd@dhec.sc.gov.

Please share this with others you know who might be interested.

11/26 633911

APPENDIX F
COMMUNITY INVOLVEMENT SUMMARY AND INTERVIEW FORMS

SF Enforcement and Community Engagement Branch Kerisa Coleman, Community Involvement Coordinator	
Lyman Dyeing and Finishing Superfund Site, Lyman, Spartanburg County, South Carolina	
Public Notice	Drafted/Published by SCDHEC
Repository	Middle Tyger Branch Library 170 Groce Road Lyman, South Carolina https://www.epa.gov/superfund/lyman-dyeing-finishing
Community Involvement	December 4, 2018
<p>The U.S. Environmental Protection Agency contacted Ms. Noel Blackwell, Lyman’s Town Clerk to provide information on the upcoming FYR and to offer an opportunity to participate in an interview; however, Ms. Blackwell indicated that she is not familiar with the Site; but would forward the interview questionnaire to others. To date, the Agency has not received any responses and/or inquiries from local government. EPA conducted door-to-door outreach on December 4, 2018 and interviewed four homeowners who live near the Site; however, left information for five additional properties. Several residents interviewed indicated that they were not familiar with the Site and were more interested in discussing other abandoned facilities in the area. EPA noted those concerns. They also indicated that this visit was the first time ever being contacted by the Agency. One resident indicated that as a boy he remembers his father being employed there but expressed no significant concerns. He saw it as a reliable source of income and stability for himself and his family. Residents, except for one, expressed interest in being added to the Site’s mailing list. EPA also visited the local information repository to ensure the Administrative Record is available for public review. During the site visit at the Middle Tyger River Library, EPA provided Site information to library staff.</p>	

Interview Form for Five-Year Review

Site Name: Lyman Dyeing and Finishing

Interviewer's Name: Evan Ethridge

Affiliation: SCDHEC

Interviewee's Name: Sara MacDonald, Project Manager **Affiliation:** SCDHEC

Contact Information: 2600 Bull Street
Columbia, SC 29201
macdonsn@dhec.sc.gov
P: 803.898.0876

Type of Interview: Email

Date 3/15/2019

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The Site's access is well protected by a chain-link fence with warning signs around the perimeter of the Site. The engineered cap appears to be well maintained and the Post-Construction sediment and erosion control measures seem effective. While the cleanup from the 2003 Action Memo and the 2009 ROD is operating well, there may be off-site sources that may endanger the site.

2. What is your assessment of the current performance of the remedy in place at the Site?

The remedy is functioning as intended by the 2003 Action Memo and the 2009 ROD. The ICs prohibit residential and groundwater use. They also add an additional level of safety to the engineered cap. However, the occasional hits above MCLs in GW-12 suggests that the remedy is threatened by an outside source. In addition, the pipes that run through the site are not monitored. If any of the pipes contain contaminated effluent, a leak in a pipe could affect the Site.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

There were inquiries regarding the use of 1,4-Dioxane due to its detection in the intake of the water treatment plant directly downstream.

In April of 2018, DHEC was contacted by Larry Chappell, Mayor of Lyman, inquiring about the Old Springs Mill Property located north of the Site. The Mayor requested help in cleaning and renovating the property. Since the Old Springs Mill Property is not part of the Site, the Mayor was referred to EPA for additional assistance.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

In 2017 and 2018, the Department conducted Post hurricane inspections in order to ensure the safety of the site.

The Department has participated in the 5 Year Review process which included a scoping call and a site visit.

The Department conducted a Declaration of Covenants and Restrictions Investigation in order to ensure that the site's ICs are appropriate. The investigation revealed that an annual Statement of Maintenance is due every year by May 31st, but DHEC has not received any annual statements to date.

In April of 2018, DHEC reviewed EPA's UCMR 3 data which showed the 1,4-Dioxane was consistently detected at the SJWD treatment plant intake. DHEC did a file review to determine if sampling for 1,4-Dioxane has ever conducted at the site. 1,4-Dioxane has never been sampled at the site and therefore, it is unclear if the Site is a source for the 1,4-Dioxane seen at the SJWD treatment plant intake.

In April of 2018, DHEC was contacted by Larry Chappell, Mayor of Lyman, inquiring about the Old Springs Mill Property and the Site. The mayor informed DHEC that the public remains very concerned with this area. The Department told the Mayor that the Old Springs Mill has not been subject to an EPA evaluation, cleanup or Superfund Redevelopment Initiative. The mayor was referred to EPA for further discussions.

In September of 2016, rehabilitation of sewer lines on parcel number 5-15-00-006.01 was completed. Prior approval was given by DHEC and EPA to dig and excavate on a portion of this parcel nearest the road and away from the Site. This approval was needed because Deed Restrictions have been placed on the entire parcel; however, the excavation work was not conducted on Site.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

I am unaware of any changes to state laws that might affect the protectiveness of the Site's remedy.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

The ICs outlined in the Declaration of Covenants and Restrictions are appropriate and help protect human health. However, as part of the requirements of the Declaration of Covenants and Restrictions signed by Springs Industry, an annual Statement is due every year by May 31st. To date, DHEC has not received any annual statements.

7. Are you aware of any changes in projected land use(s) at the Site?

I am not aware of any changes in projected land use at the site.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

One of the ROD objectives for the Site is to "prevent migration of contaminants from Site soils to surface water and protect the SJWD water treatment plant intake." Therefore, all wells should be sampled for 1,4-Dioxane to demonstrate that the Site is not a source for the 1,4-Dioxane detected at the intake for the SJWD treatment plant.

Pipes that discharge onto the Site should be sampled to determine if contamination from an offsite source could potentially impact the remedy at the Site.

An annual maintenance statement should be made to SCDHEC by May 31st every year as required by the Declaration of Covenants and Restrictions dated February 18, 2008.

Interview Form for Five-Year Review

Site Name: Lyman Dyeing and Finishing

Interviewer's Name: Evan Ethridge

Interviewee's Name: Nick Odom

Contact Information: nick.odom@springs.com

P: 803.547.1533

Affiliation: SCDHEC

Affiliation: Springs Global

Type of Interview: Email

Date:

1. What is your overall impression of the remedial activities at the Site?

Response: Effective, protective and long term sustainable protection. Springs Industries is committed to maintenance and upkeep of the site to ensure the remedy is sustained as a protection of human health and the environment.

2. What have been the effects of this Site on the surrounding community, if any?

Response: There have been no effects whatsoever on the surrounding community.

3. What is your assessment of the current performance of the remedy in place at the Site?

Response: Excellent remedy that has fulfilled the purpose set in the beginning. It was implemented in a quality manner and is maintained in a quality manner.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

Response: There have been no complaints or inquiries.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

Response: The EPA website is informative and provides an adequate level of site activities and progress. I do not see any need to make any changes in this area.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

Response: There are no justifications at this time for any changes in the remedy management and operation. The remedy is doing the job well.

7. What is your overall impression of the remedial activities at the Site?

Response: Superior performance and sustained protection of human health and the environment.

Interview Form for Five-Year Review

Site Name: Lyman Dyeing and Finishing

Interviewer's Name: Evan Ethridge

Affiliation: SCDHEC

Interviewee's Name: Aaron Council

Affiliation: AECOM

Contact Information: aaron.council@aecom.com

Type of Interview: Email

Date: February 19, 2019

1. What is your overall impression of the project; including cleanup, maintenance, and reuse activities (as appropriate)?

Response: Springs Industries has been proactive in regards to this project from the beginning, including the assessment and cleanup, and continues to actively maintain and monitor the site in order to protect the surrounding environment and community.

2. What is your assessment of the current performance of the remedy in place at the Site?

Response: The remedy in place has performed as designed and has protected the surrounding environment and community.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

Response: Groundwater and surface water data collected in January 2019 indicates that concentrations for PAHs have remained virtually non-detect at all locations and metals concentrations (arsenic, iron and thallium) have remained stable compared to historical data. No exceedance of any constituents Maximum Contaminant Levels (MCLs) were noted from the most current data. Sediment data collected in January 2019 indicates concentrations of PAHs have remained stable compared to historical data while arsenic exceeded the target cleanup level at SD-09 only at a concentration of 5.6 milligrams per kilogram (mg/kg). Background soil and sediment arsenic levels in the Piedmont of South Carolina range between 2 mg/kg and 11 mg/kg.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

Response: Springs Industries contracts with a local provider to inspect the site every other month or as needed. The contractor mows, cleans, checks the ingress/egress road, trims trees and maintains the fence.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

Response: None

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

Response: None

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1.	O&M Documents <input type="checkbox"/> O&M manual <input type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date x N/A x N/A x N/A
2.	Site-Specific Health and Safety Plan <input type="checkbox"/> Contingency plan/emergency response plan Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date x N/A x N/A
3.	O&M and OSHA Training Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date x N/A
4.	Permits and Service Agreements <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits _____ Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date x N/A x N/A x N/A x N/A
5.	Gas Generation Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date x N/A
6.	Settlement Monument Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date x N/A
7.	Groundwater Monitoring Records Remarks _____	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
8.	Leachate Extraction Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date x N/A
9.	Discharge Compliance Records <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent) Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date x N/A x N/A
10.	Daily Access/Security Logs Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date x N/A

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
 Site conditions imply ICs not properly implemented Yes No N/A
 Site conditions imply ICs not being fully enforced Yes No N/A

Type of monitoring (e.g., self-reporting, drive by) Self reporting and routine site inspections
 Frequency At least monthly
 Responsible party/agency AECOM (contracted by Springs Industries-PRP)
 Contact Aaron Council AECOM
 Name Title Date Phone no.

Reporting is up-to-date Yes No N/A
 Reports are verified by the lead agency Yes No N/A

Specific requirements in deed or decision documents have been met Yes No N/A
 Violations have been reported Yes No N/A
 Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
 Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
 Remarks _____

2. **Land use changes on site** N/A
 Remarks _____

3. **Land use changes off site** N/A
 Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
 Remarks _____

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS Applicable N/A

A. Landfill Surface

1. **Settlement (Low spots)** Location shown on site map Settlement not evident
 Areal extent _____ Depth _____
 Remarks _____

2.	Cracks Lengths _____ Widths _____ Depths _____ Remarks _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Cracking not evident
3.	Erosion Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map Depth _____	<input checked="" type="checkbox"/> Erosion not evident
4.	Holes Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map Depth _____	<input checked="" type="checkbox"/> Holes not evident
5.	Vegetative Cover <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks _____	<input checked="" type="checkbox"/> Grass <input checked="" type="checkbox"/> Cover properly established	<input type="checkbox"/> No signs of stress
6.	Alternative Cover (armored rock, concrete, etc.) Remarks _____	<input checked="" type="checkbox"/> N/A	
7.	Bulges Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map Height _____	<input checked="" type="checkbox"/> Bulges not evident
8.	Wet Areas/Water Damage <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks _____	<input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map	Areal extent _____ Areal extent _____ Areal extent _____ Areal extent _____
9.	Slope Instability Areal extent _____ Remarks _____	<input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of slope instability
B. Benches <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	Flows Bypass Bench Remarks _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
2.	Bench Breached Remarks _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
3.	Bench Overtopped Remarks _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A or okay

C. Letdown Channels Applicable N/A
 (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** Location shown on site map No evidence of settlement
 Areal extent _____ Depth _____
 Remarks _____

2. **Material Degradation** Location shown on site map No evidence of degradation
 Material type _____ Areal extent _____
 Remarks _____

3. **Erosion** Location shown on site map No evidence of erosion
 Areal extent _____ Depth _____
 Remarks _____

4. **Undercutting** Location shown on site map No evidence of undercutting
 Areal extent _____ Depth _____
 Remarks _____

5. **Obstructions** Type _____ No obstructions
 Location shown on site map Areal extent _____
 Size _____
 Remarks _____

6. **Excessive Vegetative Growth** Type _____
 No evidence of excessive growth
 Vegetation in channels does not obstruct flow
 Location shown on site map Areal extent _____
 Remarks _____

D. Cover Penetrations Applicable N/A

1. **Gas Vents** Active Passive
 Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage at penetration Needs Maintenance
 N/A
 Remarks _____

2. **Gas Monitoring Probes**
 Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage at penetration Needs Maintenance N/A
 Remarks _____

3. **Monitoring Wells (within surface area of landfill)**
 Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage at penetration Needs Maintenance N/A
 Remarks _____

4.	Leachate Extraction Wells <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____
5.	Settlement Monuments <input type="checkbox"/> Located <input type="checkbox"/> Routinely surveyed <input type="checkbox"/> N/A Remarks _____

E. Gas Collection and Treatment Applicable x N/A

1.	Gas Treatment Facilities <input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____
2.	Gas Collection Wells, Manifolds and Piping <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____

F. Cover Drainage Layer Applicable x N/A

1.	Outlet Pipes Inspected <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____
2.	Outlet Rock Inspected <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____

G. Detention/Sedimentation Ponds Applicable x N/A

1.	Siltation Areal extent _____ Depth _____ <input type="checkbox"/> N/A <input type="checkbox"/> Siltation not evident Remarks _____
2.	Erosion Areal extent _____ Depth _____ <input type="checkbox"/> Erosion not evident Remarks _____
3.	Outlet Works <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____
4.	Dam <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____

H. Retaining Walls		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Deformations	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident
	Horizontal displacement _____	Vertical displacement _____	
	Rotational displacement _____		
	Remarks _____		
2.	Degradation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident
	Remarks _____		
I. Perimeter Ditches/Off-Site Discharge		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Siltation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Vegetative Growth	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
	<input type="checkbox"/> Vegetation does not impede flow		
	Areal extent _____	Type _____	
	Remarks _____		
3.	Erosion	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Erosion not evident
	Areal extent _____	Depth _____	
	Remarks _____		
4.	Discharge Structure	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
	Remarks _____		
VIII. VERTICAL BARRIER WALLS			
		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Settlement	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Performance Monitoring	Type of monitoring _____	
	<input type="checkbox"/> Performance not monitored		
	Frequency _____	<input type="checkbox"/> Evidence of breaching	
	Head differential _____		
	Remarks _____		

IX. GROUNDWATER/SURFACE WATER REMEDIES <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	Pumps, Wellhead Plumbing, and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____
B. Surface Water Collection Structures, Pumps, and Pipelines <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	Collection Structures, Pumps, and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____
C. Treatment System <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	Treatment Train (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters _____ <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____ Remarks _____ _____
2.	Electrical Enclosures and Panels (properly rated and functional) <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____

3.	Tanks, Vaults, Storage Vessels <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____ _____
4.	Discharge Structure and Appurtenances <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
5.	Treatment Building(s) <input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks _____ _____
6.	Monitoring Wells (pump and treatment remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
D. Monitoring Data	
1.	Monitoring Data <input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality
2.	Monitoring data suggests: <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining
D. Monitored Natural Attenuation	
1.	Monitoring Wells (natural attenuation remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
X. OTHER REMEDIES	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A.	Implementation of the Remedy Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). <u>The remedy is effective and functioning as designed.</u>
B.	Adequacy of O&M Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>There are no known O&M issues.</u>

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

There are no known indicators of potential remedy problems.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

There are no known opportunities for optimization.

APPENDIX H – PHOTOGRAPHS FROM SITE INSPECTION VISIT



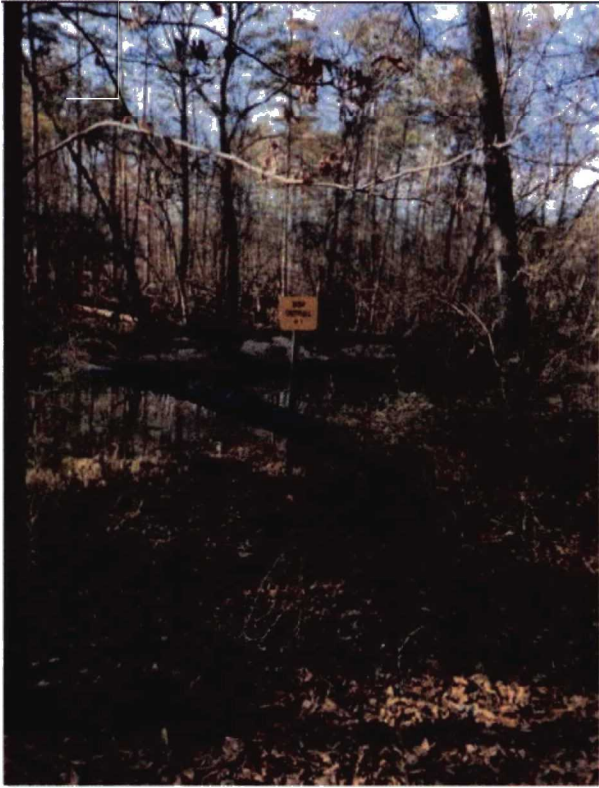
Front Gate (unlocked and open)



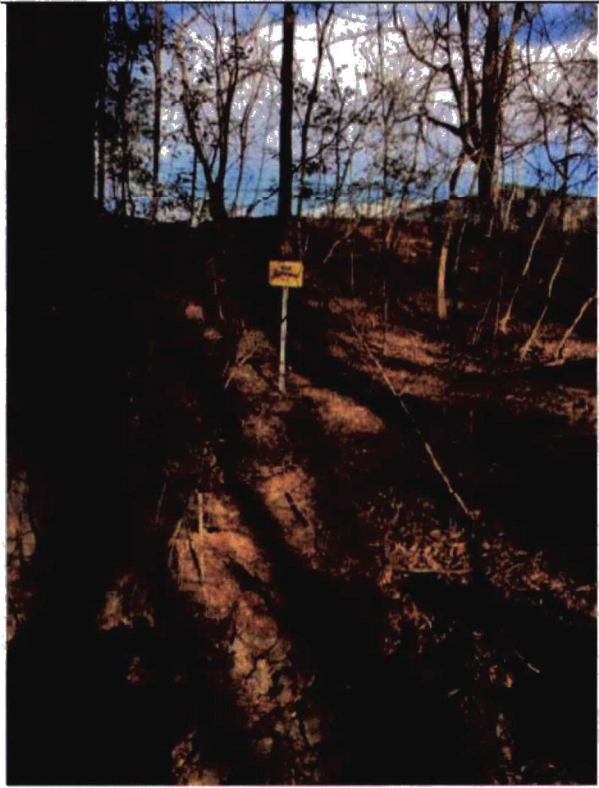
GW-09 (unlocked for sampling)



Panorama of Engineered Cap



Outfall #1



Outfall #2



Outfall #3



Outfall #4